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ABSTRACT

Intended for secondary school teachers in all subject areas, this book synthesizes and translates reading-related research on a variety of specific topics. Each chapter in the book opens with a question or questions posed by teachers, then proceeds to a discussion of the research and practice pertaining to the issues raised. Each chapter ends with a summary and a list of references. Each chapter can be read independently. Questions raised in the 13 chapters of the book deal with the following areas: (1) reading programs, (2) effective schools and effective teaching research, (3) developing lifetime readers, (4) learning from text, (5) comprehension and thinking skills, (6) vocabulary, (7) readability, (8) objectives and materials, (9) integrating oral and written language, (10) grouping, (11) teacher decision making, (12) metacognition, and (13) staff development. A 27-page bibliography concludes the document. (FL)

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RESEARCH WITHIN REACH:

SECONDARY SCHOOL READING

A Research-Guided Response to the Concerns of Educators

Editors

Donna Alvermann
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Other volumes in the series:

Research Within Reach: Reading
Research Within Reach: Elementary Mathematics
Research Within Reach: Oral and Written Communication
Research Within Reach: Secondary School Mathematics
Research Within Reach: Science Education

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FOREWORD

Learning From Text: Reading in Secondary Schools

The ability to read has been regarded for hundreds of years as the definitive mark of the educated person. More than any other intellectual skill, reading has been identified with educational prowess. We know, for example, that Chaucer's Clerk of Oxenford was an educated man because, not only could he read, but he actually owned the books!

Popular education in our country was set up with one of its primary goals of teaching people to read. Reading was viewed as being of such importance to the maintenance of the Republic that the Constitution expressly protects the right of Americans to read virtually anything that falls into their hands. In our own day, the success of a school is often judged by the scores earned by students on tests of reading performance. While our world seems infinitely more complex than Chaucer's or Jefferson's, we still equate education with reading.

While learning to read is at the heart of the elementary school curriculum, it is often difficult to locate reading instruction, either as a subject matter or as a learning tool, in elementary schools. It is true that many students participate in developmental reading programs or labs in some schools; however, secondary school teachers typically do not see reading instruction as their responsibility. Most secondary school teachers have had little, if any, preparation in ways to improve students' abilities to learn from printed materials. Moreover, studies of how teachers and students spend time in classes reveal that very little time is spent with texts (1). Most instruction is based on oral presentation, with reading done outside of class as a supplement to the oral work. Despite this situation, secondary school teachers at both the

junior high and senior high school levels tend to believe that instruction in reading is an appropriate activity at the secondary school level, and not just for remedial students (4). However, teachers seem equally divided about their own ability to provide help to students in learning how to read better. When Singer studied the attitudes of teachers toward the teaching of reading, he found that 80% felt that helping students learn to acquire information from text was the teacher's responsibility, even when the teacher's goal did not specifically include improving reading ability (3).

What we see, then, when we survey the state of secondary school reading is that:

- the ability to read, or get information from text, is a critical skill;
- teachers at the secondary school level assign reading as an out-of-class activity; and
- most secondary schools do not offer systematic reading improvement activities, except for students who require remedial help.

One step in helping school administrators and teachers improve reading instruction is not only to heighten awareness of the need for change, but also to provide some research-based answers to questions teachers ask about the teaching of reading at the secondary school level. That is what this book is intended to do.

How This Book Was Written

The Research and Development Interpretation Service (RDIS) of the Appalachia Educational Laboratory (AEL) was established to develop ways

that will translate research into practical terms for teachers. Sponsored by the National Institute of Education (now the Office of Educational Research and Improvement) of the United States Department of Education, RDIS has conducted a number of activities that help teachers put research into practice. One of the most successful of these activities has been the creation and publication of the Research Within Reach series of bulletins and monographs. This series presents research-based answers to practical questions. It is important to realize that the books in this series are not meant to function as detailed teachers' manuals, as general methods texts, or as reports of individual studies. The Research Within Reach series is meant to synthesize the available research that applies to a particular question.

Since 1978, this series has presented individual volumes that synthesize and translate research in elementary school reading, elementary school mathematics, oral and written communication, secondary school mathematics, science, and, now, learning from print at the secondary school level. While the development of each of these volumes has been marked by individual differences, the same general method has been used.

First, RDIS begins by identifying the questions that teachers want answered. One of the reasons teachers often cite for not attending to research is that they perceive it as only marginally relevant to their real needs and concerns. Therefore, we begin each of our projects by asking teachers to identify the questions they have about a particular curricular area. In our learning from print effort, we contacted the

president of each state's International Reading Association affiliate and requested help in collecting questions. We also enlisted the help of our colleagues at each of the Regional Exchange projects operated primarily by the regional educational laboratories. These Exchanges are funded as dissemination projects, charged with helping school people use research-based knowledge. As in the past, RDIS received substantial support from the Exchanges. Some Exchanges sponsored workshops on various aspects of reading research and practice and used these as an occasion for collecting questions. Others sent out questionnaires to teachers. In all, more than 300 questions were collected for our use.

The second step in our process is to establish a consultant panel for each of the RDIS projects that brings together researchers, and sometimes practitioners, who are familiar with the research in the area under consideration. For this effort, RDIS secured the assistance of Mary Dupuis of Pennsylvania State University, Michael Graves of the University of Minnesota, and Harry Singer of the University of California, Riverside. The first responsibility of the consultant panel is to study the questions and select those to be studied by the project staff. They do this by first eliminating all questions for which there is no research on which a response can be based. Then they identify questions that seem to be of widest interest.

The next step of the process involves the collection and study of a wide corpus of research. In addition to translating research, RDIS synthesizes research from a variety of fields. Using Bloom's definition of synthesis--the discovery of a pattern that was not clearly there--we look at research from fields related to the content area being studied. In this instance, we looked at the research from psychology, linguistics,

pedagogy, sociology, and philosophy, in addition to reading education. We limited the research that we collected to studies that contained secondary school students as subjects or that addressed only secondary school concerns.

Because the RDIS staff is not a large one, we have come to rely on consultant writers during the next step in the process. The consultants bring to the project skills and knowledge that enlarge the scope of the work. A writing team--RDIS staff members and consultants--was constituted for this latest effort. The writing team studied the questions and began work on some early drafts for inclusion in the book.

Following the preparation of a first draft, the consultant panel convenes to discuss it. Members of the panel point out weaknesses and areas for elaboration. They also provide added insights about ways to strengthen it. At the same time that the panel is reviewing the draft, teachers are also given a chance to comment on the manuscript. All of these suggestions are returned to the writers, who polish the drafts for publication.

After publication, the book is disseminated in a variety of ways, often with the active assistance of the Regional Exchanges mentioned above. The Exchanges conduct workshops based on the book, reproduce copies for wider dissemination, and help teachers use the book as a tool for professional self-development. RDIS staff helps in these efforts, but generally dissemination is the Exchange's responsibility. We have been fortunate, in the past, to receive help also of professional associations of teachers. The International Reading Association, the National Council of Teachers of Mathematics, and the National Science Teachers Association have all reprinted various volumes in the Research Within Reach series and make these available to interested educators.

Unlike other books in this series, this volume is addressed to a wide audience of teachers. Because learning from text is diffused throughout the secondary school, we have written for all secondary school teachers, not just those who specialize in reading. Teachers who have no particular background in reading may find in this book much that is new. It may, however, have a familiar echo for some, either because many of their intuitions about teaching are confirmed by the reseach, or because the research has examined problems that are so familiar. Teachers who are reading specialists may find that our synthesis of the research helps them attain new insights about their work. Rather than isolating the problems of teaching reading in either remedial or enrichment situations and then writing chapters focused on those extremes, we have elected to describe the research and then to apply it in examples drawn from many different contexts. The chapters are patterned after a model: each chapter opens with a question posed by a teacher. In some chapters, more than one question is presented. A discussion of the research and practice related to the question follows. This discussion includes examples and implications for teachers and classrooms. Each chapter concludes with a summary and a list of references. The references are numbered and arranged alphabetically by author. This number, when found in parentheses within the text, refers the reader to the appropriate citation. All references are brought together and presented alphabetically in a bibliograhy, which may be found in the back of the book.

Each chapter is written so that it can be read in isolation. Although this practice may have created some repetition, in the past it has been deemed valuable because it allows the reader to select chapters that are of particular interest in whatever order seems best.

The book is divided into five sections that are organized around a model of knowledge use (2). Each section is further divided into chapters. The sections represent types of knowledge known to affect teaching and learning at the secondary school level. Chapters in the first section, Knowing Why, provide a rationale for the goals of secondary reading programs, for applying what research has to say about effective schools and effective teaching, and for instilling in students a desire to read.

Section Two, Knowing What, is concerned with the knowledge base that undergirds all teaching at the secondary school level but more specifically with helping students read to learn. That knowledge base consists of research implications for helping students learn from text. Two of the chapters focus on the comprehension and vocabulary skills necessary for that learning to occur. Section Two also describes what affect the ranges in student reading ability and text difficulty have on learning from print.

Section Three focuses on the procedural, or Knowing How, aspect of knowledge use. One chapter spells out what research and theory have to say about selecting materials and then matching one's objectives with the methods and materials selected. Another chapter deals with oral and written language instruction. The final chapter addresses grouping procedures in the secondary school classroom.

Section Four, Knowing When, contains information of great importance, for unless teachers and students know when to apply what they know about reading, they will not make full use of the knowledge they possess. The chapters in this section include one on teacher decisionmaking and one on student use of metacognitive strategies.

The final section is entitled Knowing Who, and it contains a single chapter on staff development. If the information contained within the other 12 chapters is to reach its intended audience, teachers must be energized to respond to the reading needs of their students.

It is with conflicting feelings that we finish our work on this volume. This book, the sixth in the Research Within Reach series, is also the last. Since 1978, it has been our privilege to work with teachers and researchers who share a real interest in one another's work. The staff of RDIS has been afforded the luxury of time to study a wide range of educational issues. We have been aware of the responsibility entailed by that privileged time. If we have made a contribution to bridging the gap between research and practice in education, then we have carried out at least part of that responsibility.

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What are appropriate goals for a secondary school reading program?

Clearly stated goals are crucial to educational effectiveness for several reasons. Goals allow educators to ensure curricular continuity across grade levels. They serve to identify priority areas and help assure allocation of educational resources to those priority areas. Goals assist instructional planning by clarifying purposes of learning. They facilitate identification and strengthening of weak curricular areas. Clear goals assist communication with students and parents by serving as the framework for clear and understandable reports of student progress. They also make possible clear feedback on, and assessment of, overall school district accomplishment of priorities (26).

There are several levels of goals. The broadest level, which may be called a mission statement, describes a general purpose, intent, or direction and is not concerned with defining a particular achievement within a specified time period. A second level, which is referred to variously as instructional goals, program level performance objectives, or curriculum objectives, relates to district and/or schoolwide priorities (17). These may indicate a desired exit level of performance (mastery), but stop short of specifying instructional practices. The third and most specific level of goals is written for specific courses, disciplines, units, curricular areas, etc., and may be called instructional level performance objectives, student learning objectives, student performance objectives, subject area competencies--or just plain objectives. In this chapter, we focus on the broadest level of goals, mission statements.

When establishing goals, educators need to balance the number between too few and too many. In his analysis of secondary education, Boyer found both extremes (1). Too many high schools, he reported, "seem unable to find common purposes or established educational priorities that are widely shared" (p. 63). At the other extreme, he found that some so-called goals trivialized education, being so numerous as to be unrealistic. In Horace's Compromise Sizer identified a related problem (28):

> The rhetoric of high school purpose has been uniform and consistent for decades. Americans agree on the goals for their high schools. That agreement is convenient, but it masks the fact that virtually all the words in (these) goal statements beg definition (p. 78).

Finally, Goodlad reported that meaningful and comprehensive lists of goals were hard to find (13). Instead, the school visitation teams that he headed found long lists of goals/objectives, although there was "little evidence of goals consciously shared by the teachers" (p. 50).

In brief, goals for secondary reading programs are important because they provide direction. Goals provide a basis for making decisions about issues such as students to serve, materials to purchase, and teaching techniques and staffing patterns to use. Educators with a clear sense of direction certainly are to be preferred over those who make decisions on the basis of random thoughts. Indeed, it is hard to imagine any convincing support for purposeless, haphazard secondary reading programs. The difficulty, however, comes in distinguishing appropriate from inappropriate goals.

The next section of this chapter presents a theoretical perspective on secondary reading programs. This perspective provides background for specifying appropriate goals.

Belief Systems

Walmsley argued that goals for secondary reading programs are derived from particular belief systems (32). We suggest that belief systems only partially drive a program; nevertheless, knowing alternative belief systems provides a context for understanding and evaluating alternative goals. The following summarizes four belief systems that Walmsley presented: (a) cultural reproduction: academic, (b) cultural reproduction: utilitarian, (c) romantic, and (d) cognitive-developmental.

Cultural reproduction: academic. The cultural reproduction belief system that stresses academics is derived from classical depictions of the educated person. This ideology seeks to produce individuals grounded in great literature who can analyze, synthesize, and evaluate literary concepts. Knowing the traditional concepts presented in literature (e.g., Macbeth was ruined by his lust for power) is considered to be as important as applying literary analysis skills (e.g., interpreting symbolism). Although Walmsley limited his discussion of the academic belief system to English literary concerns, we would extend that ideology to other content areas. Traditional concepts are found in social studies (e.g., The assassination of Archduke Francis Ferdinand touched off World War I), science (e.g., A covalent bond is formed by shared electrons), mathematics (e.g., A ray is any of a group of lines diverging from a common center), and other content areas. These subjects contain time-honored knowledge as much as the subject of English.

Students who excel at the exercises presented in traditional content area classes designed for college-bound students exemplify the outcomes supported by the academic belief system. Secondary reading programs that

are based on materials from these content areas and that emphasize reading skills assumed to be prerequisite for understanding these particular materials follow the academic tradition.

Cultural reproduction: utilitarian. Rather than seeking to help students cope effectively with their academic heritage, the utilitarian tradition emphasizes more pedestrian, functional concerns. This belief system seeks to produce individuals who can effectively handle the reading demands found in work, home, and society. The ability to survive and succeed in a complex, technologically advanced world is seen to depend in part on reading, so the requisite skills are emphasized. Advanced utilitarian skills such as comprehending legal documents and occupational brochures are presented along with rudimentary skills such as comprehending street signs and labels on medicine bottles.

Students who excel in classes such as career education, vocational agriculture, auto mechanics, and consumer mathematics exemplify the outcomes supported by this ideology. Reading programs that emphasize materials and reading skills applicable to these courses follow the utilitarian tradition.

Romantic. The romantic belief system emphasizes the use of reading to promote self awareness. Attitude toward reading is emphasized, and insights into human nature are sought. Values are clarified, sensitivities to life are sharpened, and understandings of oneself are deepened. Teaching techniques that follow the romantic tradition reflect a psychoanalytic approach. Open-ended questions are asked (e.g., What do you think is the most important part of this story?), probing questions are interspersed (e.g., Why do you think so?), and attempts to connect

readers' experiences with the passage predominate (e.g., Have you ever acted like the main character?). Proponents of romanticism might use the same reading materials as proponents of the academic tradition, but students would be guided to fundamentally different responses.

Cognitive-Developmental. Unlike the three belief systems described so far, the cognitive-developmental tradition takes a neutral stance on the concepts that readers should acquire. Cognitive-developmentalists ignore questions about whether students should cope with their academic heritage, with everyday concerns, or with self awareness. Instead, this view emphasizes the general reading processes that are needed to cope with reading tasks. This view seeks to develop skills that are not tied to any field of knowledge. An author's message, or a reader's personal interpretation of a message, is thought to be a by-product of the skill that is developed. For instance, one objective of a cognitive-developmental program might be to teach students to summarize passages; the source of the materials would be incidental.

Another facet of this belief system is that learners progress through stages of development. This belief borrows heavily from the work of Piaget. Cognitive-developmentalists emphasize learners' movements through increasingly complex stages of growth. Readers are seen to progress from simple to complex materials and tasks.

Appropriate Secondary Reading Program Goals

Totally distinct, ideologically pure secondary reading programs are difficult to find in practice. For instance, a romantic stance might underlie reading instruction certain days and a utilitarian stance might be evident on other days. Such a blend allows educators to accommodate

the range of students they encounter. We realize the existence of eclectic programs and choose to define program goals that represent ideals drawn from the different belief systems.

We also realize that belief systems are not the only forces affecting actual instruction. Practical concerns about available materials and student receptivity influence the directions a program takes (2). Nevertheless, the ideologies proposed by Walmsley help set the stage for articulating appropriate goals for secondary reading programs. What follows are broad goals (i.e., mission statements) presented in terms of teacher behaviors that are appropriate for secondary reading programs.

Teachers will direct students to concepts in their reading materials. Students encounter a maze of confusion when reading their school texts. Nicholson described several sources of this confusion, pointing out that a frequent source came from students substituting the everyday meanings of words for their technical ones (22). For instance, in a social studies lesson, availability of markets was presented as a factor that determined the location of factories. The text explained that factories were built in areas where a demand for the product existed. One confused student associated markets with the everyday meaning associated with buying food, and concluded that businessmen situated factories close to grocery stores so that workers would be able to eat conveniently.

Guiding students to concepts is a time-honored function of classroom teachers. It fits most squarely with the cultural reproduction belief systems described above. Teachers direct students to information about the world that is determined to be essential. The goal is to provide the most efficient direction possible.

Teachers will help students use independent learning-from text strategies. Independent learning-from-text strategies allow students to direct their own reading; these strategies allow students to interact on their own with the information contained in unfamiliar passages. Students control their own learning processes when independent strategies are available. The value of independent strategies is summarized by the popular aphorism, "Give me a fish and I eat for a day. Teach me to fish and I eat for a lifetime."

One survey described by Tierney suggested that secondary school students' predominant study strategies were (a) read a text all the way through only once and (b) memorize portions of the text (30). No reasons were given to explain why more powerful learning strategies such as notetaking, summarizing, self-questioning, and predicting were used less frequently. Thus, helping students use independent learning-from-text strategies at least means providing appropriate learning situations while teaching students to use suitable learning strategies.

Teaching students independent learning-from-text strategies seems to best fit the cognitive-developmentalist ideology. This stance emphasizes reading strategies that can be applied to any content for any reason. The teaching of learning strategies certainly can occur during the study of the content areas (15), but the cognitive-developmentalist stance emphasizes the development of strategies--not the concepts the strategies are used to acquire.

Teachers will promote positive attitudes toward reading. The romantic tradition emphasizes attitudes toward reading more than the other traditions described by Walmsley. This tradition views attitude as

valuable in its own right. Students who will not read are thought to be as disadvantaged as students who cannot read. Moreover, promoting attitudes fits with other belief systems due to the finding that students who value reading and engage in it willingly tend to achieve at a higher level than students who do not. To illustrate, one study compared achievement and attitude data on 2,300 17-year-old students who participated in the 1979-80 National Assessment of Educational Progress (31). Measures of attitudes toward reading were found to correlate substantially with measures of reading achievement.

Although attitude toward reading frequently is presented as an all-or-nothing construct, a multi-dimensional conceptualization of reading attitude among high school students has been presented (18). Dimensions of reading attitude were measured reliably with items such as "Being able to read is a great help to me in my school work," "I can have a better job if I am a good reader," and "The more I read, the more I learn about myself." The match between the dimensions of attitude tapped by these items and the academic, utilitarian, and romantic belief systems articulated by Walmsley is striking. The point here is that attitude deserves attention by teachers, and that different facets of attitude are candidates for such attention.

Teachers will accommodate readers who are at different levels of development. Standardized test score results in the 1930s and 1940s substantiated the fact that secondary school students exhibited wide ranges of reading achievement (20). Some students were found to be barely literate while others were judged to be achieving at proficient adult levels. The prevalence of this range of achievement today is confirmed by numerous reports (8, 9, 16).

Levels of reading achievement have been categorized according to various stages (3, 9, 10). A common feature of descriptions of reading stages is that students attend to different aspects of written messages. At some stages, students focus mainly on decoding words and, at other stages, students focus on integrating the information they gain with what they already know. Accommodating students who are at such different levels of reading development deserves the attention of secondary school teachers if they are to help students progress. The cognitive-developmentalist viewpoint described above emphasizes the role of challenging students with tasks appropriate for their levels so that they can progress to higher levels of development.

A Caution

Many educators assume that students are directed to portions of textbooks and other materials to satisfy academic, utilitarian, or romantic concerns. Students are thought to depend heavily on reading in order to succeed in school. However, several independent investigators have pointed out that reading might actually play a relatively minor role in the lives of secondary students (7, 14, 24, 25, 29). Teachers frequently make reading assignments, but they seldom expect students to develop understandings from the passages. That is, teachers assign a portion of text to be read, but they later present through a lecture-discussion format the concepts the students were to have learned. Thus, many students can participate adequately in class without reading.

The reading practices in secondary schools are difficult to change. Indeed, any change is exceptionally difficult to implement in secondary

schools (4). Secondary school teachers face tremendous pressures from sources other than a desired reading curriculum (5, 6). Secondary teachers encounter from 100 to 200 students each day in class. Normal teaching loads consist of five or six daily classes and two to four daily preparations. Keeping the lid on potential outbursts requires a great deal of effort. Isolation from other teachers inhibits shared decisionmaking. Integrating instructional strategies that guide students' reading is often perceived as the role of a trained reading specialist.

Educators concerned about secondary school reading programs should realize that secondary teachers typically require substantial changes before they meaningfully guide students' reading during daily instruction. And the literature on teacher change is clear that teachers need to assume ownership of a program and actively participate in its development for progress to happen (11, 12, 19). Thus, we caution educators to consider the goals presented in the preceding section only as a starting point. The goals we described are broad statements of the general mission of an abstract secondary reading program. Educators who are developing goals for a specific, concrete program should use these statements as a springboard for discussion with their colleagues in order to devise goals that are appropriate for their particular situation.

Is the reading laboratory approach a viable one for secondary schools?

In order to assess the viability of the reading laboratory approach, awareness is needed of alternative approaches to secondary school reading programs. Awareness of the many possibilities for providing reading

instruction provides a context for evaluating reading laboratories, one specific approach.

Secondary School Reading Programs

The reading laboratory approach is one of nine types of secondary school reading programs described by Singer and Donlan (27). The nine types differ according to factors such as where the instruction occurs, who presents it, which students are served, what the intended outcomes are, and what types of materials are used. The following is a summary of nine types of secondary school reading programs described by Singer and Donlan (27).

(1) Tracking System

- Strategies and assumptions. Low-achieving students are placed in a separate "track"; both texts used and curriculum covered are adjusted. The approach assumes that appropriate reading instruction can be given all students in the track. (Note: Honors and college-preparatory tracks are also found in schools.) Instruction may not move from basic to advanced; movement out of the track does not usually occur.
- Advantages and disadvantages. The system does not adequately address the differentiated abilities of students. It may also be illegal if biased tests lead to placement of certain groups of students in an "inferior educational program."

(2) Clinical Center

- Strategies and assumptions. Centers may involve providing instruction to all students in a particular grade (e.g.,

7th, 9th) in conjunction with, for example, their English class. In other cases, students are referred to the center after individualized diagnosis by a reading specialist. Centers generally use one-to-one or small group instruction on specific (deficit) skills.

- Advantages and disadvantages. Reading growth generally does occur, but transfer of the skills to general use has been found to be less successful.

(3) Reading Laboratory

- Strategies and assumptions. Placement in the reading laboratory generally comes as a result of low reading test scores, although content area teachers may refer students for assistance. After individualized diagnosis, students are assigned individualized (often self-instructional) materials. Students move out of the laboratory either by completion of assigned sets of materials or by test. The approach assumes that students can learn skills on their own with occasional assistance.
- Advantages and disadvantages. Many of the instructional materials used are excellent, and students can make progress on specific reading skills. However, there is little, if any, impact on learning from text and on content area reading. Students must overcome their own difficulty or at least recognize when to ask for help.

(4) Functional Reading Program

- Strategies and assumptions. Designed for students with low reading scores (standardized and diagnostic), this approach

incorporates goals, materials, and competency tests based on analysis of the actual types of materials they are likely to read as adults (e.g., manuals, recipes, forms). Instructional strategies involve some whole group instructions and lots of individual practice; may involve some practice in mathematics skills also.

- Advantages and disadvantages. The strategy is very specific (reading as a "survival skill") and has little, if any, relationship to the content areas. The program may represent the consequence of a decision to give up on trying to prepare some students for content area courses and the general academic objectives of school.

(5) Individual Reading Class

- Strategies and assumptions. This class tends to be designed for students low in reading achievement and may replace the regular English class for those students. Some instruction in reading may take place, but often the emphasis is on literature from high-interest, low-difficulty materials. Students sometimes receive instruction on using a specific content area text (usually by teacher request). The approach can represent a type of tracking system, and assumes that average and above-average readers need no further instruction in reading and using texts.
- Advantages and disadvantages. Negative labeling of students may occur, and low teacher expectations for student achievement results from this strategy. The approach tends to increase, not decrease, the gap in English knowledge for the students.

(6) Multifaceted Reading Instruction

- Strategies and assumptions. Generally designed as a class for students with low reading scores, this approach involves use of a wide variety of activities, many of them teacher-made. Materials used are usually highly motivational and varied. Some skill instruction is provided by the teacher in conjunction with numerous individual and small group activities.
- Advantages and disadvantages. Exercises and instruction are generally not related to content area learning and, too often, not to each other. Although such instruction should be focused, coherent, and cumulative, skills may be addressed in isolation and without sequence.

(7) Three-Stage Program

- Strategies and assumptions. Part of the regular class schedule (e.g., for all 9th graders), the program includes reading classes for low, average, and high-achieving students. The "low" class may be a remedial program; the grade-level class a reading laboratory; and the accelerated, a study skills/college preparatory class. The low level classes may focus on word recognition and reading acquisitions. The laboratory class may be called "developmental" while accelerated or "exploratory reading" classes target critical reading, research and study skills, and independent reading.
- Advantages and disadvantages. Although this strategy addresses a range of student abilities and recognizes the

ongoing development of reading skill, it misses the fact that all levels of students need some of each type of instruction, especially as related to reading/learning in the various content areas.

(8) Schoolwide Reading Program

- Strategies and assumptions. Largely integrated into the school curriculum, schoolwide reading programs show wide variation in operation ranging from management and organization of reading skills instruction by a reading specialist who provides assistance to all staff on a request basis, to intensive involvement (and inservice training) of all faculty in providing instruction leading to ongoing development of reading skill.
- Advantages and disadvantages. Positive results can be obtained when defined objectives are followed by trained faculty. Starting with a single instructional approach (e.g., SQ3R) used by all and working, as a staff, toward using a variety of approaches for providing growth in "all facets of reading and learning from texts" is recommended. Implementation of such a program is a total staff, multiyear effort.

(9) Proficiency Examination Program

- Strategies and assumptions. Sometimes open-exit in nature, this program is designed to assist students to pass (state) mandated tests of basic skills or competencies. The class, generally taught by a reading specialist, uses a remedial curriculum to address deficit skills.

- Advantages and disadvantages. Because of its relationship to a particular type of test, this approach may be like the functional reading program, rather than related to the general school curriculum.

Evaluation of Types of Reading Programs

Surveys of secondary school reading programs reveal that schoolwide approaches are rare; most reading instruction occurs in separate classes devoted specifically to reading (33). The classes usually carry labels such as developmental or corrective, but the labels are misleading because the actual focus and organization of the classes are designed to meet a variety of needs. For instance, little is known about the extent of classes that emphasize academic or utilitarian reading functions. Little is known about whether the classes are clinical centers, reading laboratories, or individual reading classes. What is clear is that separate classes characterize most secondary reading programs.

Research evidence in support of separate reading classes is rare. For instance, Palmer and Brannock reviewed research related to the value of specialized reading services for students in high school (23). Few studies were located, and the quality of the research frequently was flawed. Nevertheless, Palmer and Brannock tentatively concluded that special high school classes focusing only on reading skills produced few effects on students' long-term reading performance. Isolated successes with individual students and schools certainly exist, but the overall success rate in terms of reading achievement seems to be modest.

Although the research literature offers little support for separate secondary school reading classes such as reading laboratories, it should

be noted that the research also offers little support for alternative approaches. For instance, Nelson and Herber recommended schoolwide reading programs "with confidence because we see this kind of instruction occuring in a variety of school districts and we know that it works" (21, p. 151). Despite this testimonial, there is little published research evidence to support schoolwide reading programs.

Conclusions about the value of reading laboratories--as well as other approaches to secondary school reading--seem to be based on personal beliefs and on information that is specific to a school or school district. Universal statements, such as "reading laboratories work," cannot be made because labs vary so much from school to school. Funding guidelines and local resources clearly affect the success of programs. A reading lab in one school might emphasize skill development through extensive use of library books, while another might emphasize only work sheets. One lab might support a schoolwide reading program, while another might exist in isolation. The enthusiasm and expertise of teachers in one lab might cause it to be successful, while the apathy and ineptitude of teachers in another lab might subvert it. One program might be supported by effective consultants, while another might receive no consultative services. Indeed, rather than attempting to determine which types of reading programs are most viable, current researchers attempt to identify characteristics common to all programs that bring about success. These characteristics are described in chapter two of this volume.

Summary

In summary, goals for secondary school reading programs help educators work toward a clear consistent outcome. Knowing belief systems

that accompany programs helps to evaluate program goals. Four belief systems are (a) cultural reproduction: academic, (b) cultural reproduction: utilitarian, (c) romantic, and (d) cognitive-developmental. Few programs exemplify these belief systems in pure form; secondary reading programs tend to combine these beliefs. Some broad program goals that were derived from these beliefs were (a) teachers will direct students to concepts in their reading materials, (b) teachers will help students use independent learning-from-text strategies, (c) teachers will promote positive attitudes toward reading, and (d) teachers will accommodate readers who are at different levels of development. Educators might use these four goals as the basis for developing ones that fit their particular programs.

In order to evaluate the reading laboratory approach to secondary reading instruction, awareness of alternative approaches is needed. At least nine types of secondary school reading programs are possible: (a) tracking system, (b) clinical center, (c) reading laboratory, (d) functional reading program, (e) individual reading class, (f) multifaceted reading instruction, (g) three-stage program, (h) schoolwide reading program, and (i) proficiency examination program. Very few studies comparing the outcomes of these types of programs are available. Research evidence supporting alternative approaches also is rare. Generalizable conclusions about the value of reading laboratories are difficult to construct because every lab exists in a unique situation. Thus, educators who seek to know if reading laboratories are viable would do well to investigate characteristics that contribute to the viability of all programs.

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EFFECTIVE SCHOOLS/EFFECTIVE TEACHING RESEARCH

What impact has effective schools research had on reading instruction in the content areas in the secondary school?

Reading researchers have only recently been interested in what goes on in classrooms (17). Effective schools research has yet to have a broad impact on content reading instruction at the secondary level. This chapter discusses the findings of effective schools research, offers some reasons why effective schools research often fails to become integrated in secondary school reading, and describes some emerging trends in content reading research related to effective teacher decisions.

Effective Schools Research

The findings of effective schools research offer at least three definitions of effective teaching (24). Early research focused on the effectiveness of discipline and management techniques. In the 1960's and 1970's, research examined process-product relationships, or relationships between instruction (process) and student achievement (product). More recently, effective teaching has been considered in the context of teacher intentions, goals, judgments, and decisions. Each of these areas of research will be described below.

Classroom management. Effective classroom management can be defined as "teacher behaviors that produce high levels of student involvement in classroom activities, minimal amounts of student behaviors that interfere with the teacher's or other students' work, and efficient use of instructional time" (10, p. 342). Many studies on classroom management occur in settings that involve reading, such as elementary reading or

junior high English classes, yet few, if any, consider the relationship of effective management to effective reading instruction.

Teacher behaviors that contribute to effective management include "with-it-ness," or how much the teacher lets students know he/she is aware of their activities. "Overlapping" refers to a teacher's ability to take care of multiple classroom events. "Momentum" involves the smoothness with which the teacher moves from one activity to the next. "Group alerting" consists of the teacher's attempts to involve everyone in a classroom task. "Accountability" entails how well the teacher holds students responsible for their work. "Challenge arousal" refers to a teacher's use of statements that motivate students to participate in an upcoming activity. Finally, effective classroom managers vary activities and continually present students with appropriate challenges. Teachers rated high on these behaviors generally get greater student involvement and less deviance from learning tasks than teachers rated lower on these behaviors (20).

Considerable attention has been given to how teachers successfully apply these behaviors during the school year. An important step is to communicate expectations to students as early as possible, setting aside time in the first few days to discuss rules and procedures. Other recommendations include teaching classroom rules just like any other concept, i.e., by demonstrating, modeling, and explaining one's expectations. Teachers also need to time explanations to coincide with the need for rules. For example, the first few days might be spent on procedures for grading. Procedures for small-group discussion, however, can wait until the procedures need to be implemented (11).

It is also helpful to begin the year with simpler tasks with a high rate of success. Students can then proceed to the more complicated tasks with a positive attitude and a clear sense of what is expected. This is particularly true of tasks that require discussion (11). At the beginning of the year, it may be better to present tasks in a whole-class versus a small-group format. Students are usually more accustomed to whole-class discussion and they may need to learn procedures for conducting discussions in small groups (19).

Process-product research. Process-product research deals with instructional activities, such as teachers' questions, their use of feedback, and the rate at which instruction occurs. In contrast to management activities, which are responsible for supporting and maintaining instruction, instructional activities comprise the central focus of teaching, and are usually used to build students' understanding. Process-product research is interested in the impact of instruction on students' academic achievement (17).

Reading research contains few examinations of process-product relationships in the secondary classroom. In one study, Brophy and Evertson found that carefully structured, teacher-directed reading activities positively influenced the achievement of seventh and eighth graders. Greater amounts of time spent on these activities also increased achievement (2).

More recently, studies have looked at ways to improve teachers' use of time during instruction. Effective use of time, sometimes mistakenly referred to as "time-on-task," is one of the more often cited predictors of academic success (1). A typical approach to improving the effective

use of instructional time is to study teachers' current use of classroom time and then draw from effective schools research for ways to improve current practices. For example, Stallings espouses a three-stage approach to teaching basic skills, which involves analyzing the existing classroom, using research findings to redesign lessons, and helping teachers train each other (28). Teachers in Stallings' program learn how to apply verbal interaction strategies, such as guidance and reinforcement of student responses. These strategies can have a positive effect on achievement.

Other programs organized in this fashion emphasize the importance of planning and preparation, presentation and explanation, verbal feedback, and the provision of guided practice and seatwork. These behaviors contribute most to academic success when they are teacher-directed and consistent. Some approaches have also incorporated classroom management strategies, such as presentation of rules and procedures, and holding students responsible for behavior (13). When applied effectively, programs based on process-product research can make teachers more knowledgeable, improve instruction, and increase student achievement (14).

Recently, Shulman noted that process-product programs often reveal a mixed pattern of results (25). Not all behaviors work equally well in each classroom. In addition, there can be an overemphasis on standardized test scores, instead of an attempt to understand why some practices work better than others. Effective programs attempt to match specific teacher behaviors to the needs of different contexts while focusing on explanations for the effectiveness of different practices.

Teacher decisionmaking. Research on teacher decisionmaking grew out of the belief that classroom management and instruction are necessary but

not sufficient conditions for student success (8). Missing is a concern for the complexity of the classroom and how teachers provide substantive instruction to students within different classroom contexts. Duffy argues that in the face of complexity, most teachers make decisions in favor of establishing productive routines based on management principles (8). A prevailing routine is "turn-taking," in which instruction is assumed to be occurring when a teacher asks a question, when a student responds, and the teacher reinforces or corrects the student's response. Unfortunately, while this approach maintains the flow of activities, it does not guarantee attention to helping students understand what they are required to learn (9).

While most of the decisionmaking research has been conducted at the elementary level, there have been some attempts to describe secondary teachers' decisions. The findings of these studies parallel those derived from research on elementary teachers. For example, "recitation" is the focus of many secondary teachers' decisions (16). Like turn-taking, recitation is a routine involving teacher questions, student responses, and teacher reactions. A teacher's decisions about recitation are often guided by a textbook: the teacher uses the text to ask questions and determine whether or not a correct response has been offered.

Routines like recitation contribute to classroom stability, that is, a predictable pattern is established in which both teachers and students come to know what is expected. However, routines can have a harmful effect on classroom instruction. Recitation can center more on factual recall than on developing students' thinking skills. Further, by over-

emphasizing the textbook, recitation can replace rather than support teacher decisionmaking (7).

Effective classroom decisions are those in which a teacher uses knowledge to choose or design instruction that best meets the needs of a particular context (25). The knowledge a teacher can tap into includes subject matter knowledge, knowledge about instruction, and knowledge about textbook concepts. Textbooks, time constraints, and the pressure of the curriculum can all interfere with a teacher's ability to make knowledgeable decisions (23). Research is rare at the secondary level to determine how to help teachers learn to make better classroom decisions in light of their own knowledge and constraints. Chapter 11 provides specific recommendations in light of what is known about teacher decisionmaking at the secondary school level.

Why is research on effective schools rarely integrated with secondary school reading?

One reason effective schools research is rarely integrated with secondary reading has already been identified: little research deals specifically with school effectiveness and reading at the secondary level (12). Other problems include (a) requiring teachers to implement all of the findings of effective instruction at once; (b) ignoring the subtle and complex interactions between teachers, students, and situations; and (c) mandating excellence without providing proper support and feedback. These problems are significant since they often result in staff development programs that sidestep a requirement identified by research on effective schooling: the need to directly involve teachers so that they can develop their own decisionmaking abilities (18).

Consider one program of instruction that was implemented in two separate contexts (21). The program specified that teachers would learn to implement principles of effective instruction, but only through collaboration among staff developers, teachers, and principals. After three years, the program led to widespread, positive changes in one school district that ranged from renewed professional commitments to changes in teachers' classroom behavior. In a second school district, teachers continued to express support, yet few practices from the program could be found in any classroom. These results can be attributed to differences in teacher involvement. Considerable collaboration among participants in one school site helped in dealing with problems in the secondary curriculum, while collaboration in the second school site was inconsistent and diffuse.

Successful programs are adept at fostering direct teacher involvement. Interactive Research and Development describes a program that engages secondary teachers, staff developers, and researchers in selecting and conducting research that can be translated into staff development training (29). The emphasis on research and staff development tends to place a premium on what is practical to classroom teachers. As a result, teachers are drawn into the reserch process and they can focus on problems unique to their own situations, like preparing instructional materials according to their students' abilities and conducting small-group discussions. Programs like this stand a much better chance at implementing the findings of effective schools research than programs that ignore teachers' needs or the complexities of the secondary classroom.

School effectiveness research has had an uneven record of implementation in secondary schools because of the tendency to ignore how the research is applied in school settings. Especially crucial to the issue of implementation is the need to incorporate effective schools research with what research says about creating change in schools.

Some Emerging Trends in Content Reading Research

Recently, proponents of content reading have stressed greater attention to staff development and its relation to teacher effectiveness (22). This trend could integrate effective schools and content reading research and address needs overlooked by many effective schools efforts--for example, the need to directly involve teachers. Much of this work is summarized in the chapter on staff development later in this volume.

A second trend is to examine how knowledge about content reading can help teachers make better classroom decisions, that is, decisions about using textbooks and guidance materials more effectively to help students learn from text (3). Effective use of textbooks and guides can be defined as use that facilitates rather than replaces teacher decisionmaking during instruction. In some secondary classrooms, teachers cover facts at the expense of discussing important ideas or the implications of those ideas. In turn, students come to view the teacher as the primary source of information, not the texts. This can defeat the overall objective of helping students become independent learners (26).

Teachers who participate in long-term staff development programs in content reading use knowledge about textbooks and guide materials to make purposeful classroom decisions. In one study, teachers who had spent

three years learning about content reading consistently demonstrated goal-oriented adaptations in their use of three-level comprehension guides (6). Three-level guides contain declarative statements written to require responses at the literal, interpretive, and applied levels of comprehension. At the literal level, students place checks next to the statements that occur explicitly in the text. Interpretive statements embody an author's meaning if they can be supported by implicit relationships among explicit text statements. At the applied level, students are encouraged to integrate information gained from experience at the literal and interpretive levels with their own prior knowledge (15). An example of a three-level guide appears in Figure 1.

Organizing Idea: A person can keep self-respect without cramming it down another person's throat.

Literal: Place a check next to the statement if it says what the author says in Shane. Be ready with one example from the book to support your answers.

___ 1. Shane has a very mysterious past.
___ 2. Joe is a hardworking farmer.
___ 3. All the homesteaders respect and rely on Joe's good judgment.
___ 4. Shane and Marion have a strong affection toward each other.
___ 5. Shane and Joe battle Fletcher's men in Grafton's bar.
___ 6. Shane and Joe pay for the damages to the bar.
___ 7. Shane goes to face Wilson and Fletcher in a gun battle.

Interpretive: Place a check next to the statement if it says what the author means in Shane. Be ready with two examples from the book to support your answers.

___ 1. Joe wanted to prove that he and Shane could conquer the valley.
___ 2. Shane keeps Joe from the gun fight because he knows Joe will die.
___ 3. Shane fights Wilson and Fletcher for Marion.
___ 4. Shane never really could stay with Marion.
___ 5. Shane leaves because of his love for Marion.
___ 6. Shane leaves because he's a troublemaker.

Applied: Place a check next to the statements you can support from Shane and from your own experiences. Be ready with an example from both places to support your answers.

___ 1. Love conquers all.
___ 2. Friendship is more important than anything.
___ 3. It is not always easy to do the right thing.
___ 4. It is more important to like yourself than to worry about what others think.
___ 5. You don't have to fight someone to keep your self-respect.

Figure 1

An Example of A Three-Level Guide

Teachers in the Conley study used their knowledge about content reading to adapt their approach to the guides. Teachers talked about these adaptations as attempts to achieve different lesson goals. For example, teachers varied the distribution of questions they asked about each level of the guides. They asked more questions about literal statements in some lessons to make topics more familiar, and emphasized interpretive statements in other lessons to bring out important text concepts. Sometimes, they stressed applied statements to develop real-life problem solving (6).

In a followup study, English teachers who were just learning how to use the guides demonstrated limited effectiveness in making decisions (5). Having experienced less than one year of a staff development program in content reading, teachers in this study made similar goal-directed decisions--for example, emphasizing interpretive statements to develop text concepts like characterization in a novel. These teachers' decisions, however, were not as consistently effective as teachers in the previous study. Their questions sometimes deterred rather than supported lesson goals. In asking questions about applied statements to personalize ideas from a novel, one teacher overlooked the need to first develop a clear understanding of concepts in the novel. This second study suggests that teachers need time to acquire and apply knowledge, if content reading is to play a role in effective decisionmaking (5).

Teachers who become knowledgeable about content reading know how to use textbooks according to lesson goals and student needs. They can manipulate their use of content reading guides to help students

understand ideas for different purposes. Further, they become more aware of the processes they use in making classroom decisions.

These implications are particularly important, given recent work on the role of context in reading (27). Teachers who learn to be sensitive to different contexts are in a better position to create situations in which reading will occur. This has been demonstrated with content reading in arctic Alaska. Teachers who learned content reading strategies in the Arctic were able to use reading to promote cross-cultural understanding between themselves and their Eskimo students (4). Teachers who learn about content reading become more adept at making effective decisions in relation to varying tasks, cultures, and contexts.

Summary

Effective teachers choose management and instructional activities that foster direct student involvement. Teachers should offer students a clear sense of what is expected and should carefully structure activities to sustain interest and increase opportunities to learn. Effective schools research has yet to have a broad impact on reading instruction in the content areas in secondary schools. Research dealing specifically with effective schools and secondary reading is rare. Staff development efforts need to build on direct teacher involvement. Staff development that combines effective schools and content reading research has the potential for encouraging broader impact. Effective secondary teachers use knowledge about content reading to make purposeful classroom decisions. Rather than being dominated by the textbook, knowledgeable teachers use textbooks and guide materials to further students' understanding for different purposes. The research on content reading can help secondary teachers make better classroom decisions.

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DEVELOPING LIFETIME READERS

What are some motivational techniques for working with secondary school readers to develop lifetime reading habits?

In the past decade or so we have witnessed a virtual information explosion in the area of cognitive processes related to reading, but little or no activity related to motivation and reading (31). This imbalance between cognitive and affective concerns is perhaps partially explained by an observation made by Wigfield and Asher in their chapter on motivational influences on reading in the Handbook of Reading Research:

> "On the one hand, researchers interested in the development of achievement motivation processes generally have not explored how such processes operate in particular achievement contexts such as reading. On the other hand, reading researchers...often have conceptualized motivation in rather general terms and have not attended to specific processes or components of achievement motivation" (36, p. 423).

Regardless of the cause, the effect remains: we know more about how information from a text is stored and retrieved from memory than we do about why an individual might elect to interact with a text in the first place. Clearly, the shortage of research on motivational techniques for working with secondary school students to develop lifetime reading habits is indicative of the need to establish a research agenda aimed at improving our understanding of that area of literacy development.

The lack of research on motivation and its influence on reading has not kept that topic from surfacing regularly in practitioner-oriented journals, methods textbooks, and popular tradebooks, however. A hand search of the last four years of the Current Index to Journals in Education uncovered more than two dozen journal articles written for practitioners on the topic of motivational techniques for working with

secondary school readers to help them become lifetime users of print. Methods textbooks, particularly those that deal with young adult literature (12, 29) and trade books written for teachers, librarians, and parents (8, 13) all provide guiding principles and suggested activities for motivating secondary school students to become lifelong readers. Several of these principles and their corresponding activities are presented below.

Guiding Principles and Suggested Activities

1. "The best way to motivate teenagers to read is to allow them to read books based on their needs, interests, and abilities.... The difficulty for the teacher is in organizing a curriculum that will help students learn necessary skills, concepts, and ideas while they are reading books based on their individual needs, interests, and abilities" (29).

In the English classroom, teachers can avoid the pitfalls associated with plunging students too quickly into the "classics" if they will use young adult novels as working models for studying plot, setting, characterization, theme, and symbolism. According to Small, "Other subjects, mathematics and the sciences particularly, have made great use of the concept of the working model; but as literature teachers we have turned directly to the great and complex for examples of art and frequently experience not too surprising failure" (32, p. 58). A young adult novel that can serve as a model for understanding plot and interrelated subplots is Robert Cormier's The Chocolate War (9). The

importance of setting to the classic works of Austen can be introduced through the young adult novel entitled Soul Catcher (18). Similarly, the characterization of Updike can be modeled through the character development in The Great Gilly Hopkins (28).

Social studies teachers can use the thematic unit as a vehicle for teaching the skills and concepts typically associated with the social sciences curriculum. For instance, a unit on political censorship and its control of people might include Larry Bograd's The Kolokol Papers (7) or Lloyd Alexander's The Beggar Queen (2). In the Bograd novel, the budding romance of the son of a human rights activist is pictured in contrast to the scene of a turmoil created by those who dare to oppose the Soviet way of life. In The Beggar Queen, the turmoil caused by resistance to tyranny and the moral dilemmas evoked by fighting for a just cause are played against such universal themes as love, loyalty in friendships, and hopefulness. These two young adult novels can be used to pave the way for such classics as Aldous Huxley's Brave New World (22) and George Orwell's 1984 (27).

Science teachers, too, can make use of young adult literature to motivate teenagers to read. Because most quality science fiction has a base in scientific fact, students can be helped to discuss the fictional book's plausibility in terms of the scientific facts presented in their content area text. The books of Heinlein, for example, Stranger in a Strange Land, (17) and Asimov are particularly appropriate to use because both authors extrapolate from scientific fact the necessary information for building a science fiction story.

2. "Related readings greatly aid in conceptualization development because they broaden readers' background and help them make associations between materials" (33, p. 485).

According to Katherine Wiesendanger (35), the aim of related readings is to encourage students to read a variety of materials on the same topic. She suggests that teachers who use this technique need to provide materials that are three reading levels below and three reading levels above the students' grade placement. The materials should include newspaper and magazine articles, pamphlets, and other print sources in addition to the traditional book. Suggesting several books by the same author--e.g., Monica Hughes' The Keeper of the Isis Light (19), The Guardian of Isis (20), and The Isis Peddlar (21) is another form of providing opportunities for related readings. When multiple copies of several young adult books are used for related readings, students can share their reactions to books that were read in common.

3. "The only way to improve reading skill is by reading. Reading, like any other skill takes practice" (29, p. 320).

The idea here is that with increased reading activity comes increased reading skill, which, in turn, can lead to a lifetime of reading (38). Turning reluctant readers at the middle or junior high school level into lifetime readers is a goal that is attainable only through practice, according to Beckman (5). To ensure that unseasoned or reluctant readers gain the practice they need, Beckman offers several guidelines, based on observations made of students in her own classroom over the years. For example, she suggests introducing new or reluctant readers to stories that begin on page one. As Beckman puts it, "...they don't want to know all the details of the flora, fauna, and smells of the

setting before getting into the plot" (5, p. 84). Phyllis Anderson Wood's book, This Time Count Me In (37) is one paperback that exemplifies what Beckman is talking about.

Selecting books that have a small cast of characters and that use dialogue (as opposed to narration) to carry the action is another guideline useful for turning reluctant readers into eager readers. Preparing students adequately for stories that have flashbacks or shifts away from the normal story sequence is a third guideline. Books with dual narrators, like those with flashbacks, will present too many complications to make them motivating to the uninitiated reader (39). With teacher assistance, however, reluctant readers, too, will learn to enjoy the variety offered by these literary conventions.

Beckman also suggests a technique that motivates students to read based on their peers' evaluation of books. Three-by-five index cards, filled with students' ratings of books and two or three sentences giving personal reactions, can be stored in plastic postcard holders (similar to billfold picture holders) and hung from chalkboard hooks. These displayed "silent book talks" provide other students with highly valued peer information about books. At the year's end, students may elect to remove their cards from the holders and take them home as tangible evidence of their progress toward becoming leisure time readers.

Daniel Fader's The New Hooked on Books (13), which was first published in 1966 as Hooked on Books: Program and Proof, has influenced many English teachers to consider young adult literature in a favorable light (12). One of Fader's techniques for motivating students to read, the "saturation-diffusion" technique, is based on the notion that

students should be surrounded with paperbacks, newspapers, and magazines. The small amount of research that exists on the saturation-diffusion technique suggests that surrounding unmotivated, poor readers with paperbound books can turn them into motivated readers (at least motivated in comparison to other poor, unmotivated readers). McNeil concluded that "reading appears to be an age-related phenomenon whose joys are learned by practice and whose pleasures increase with the growth of greater skill" (26, p. 200). Reed found that after the unmotivated, poor readers in her survey of 250 high school students had been exposed to the saturation-diffusion techniques, they were not only choosing young adult paperbacks, but they were also requesting instruction in the "classics" (29).

4. "...Students must be helped to feel good about their ability as readers. They must be convinced that they can read and must be shown that reading need not be punishing, but can be enjoyable" (29, p. 323).

Students who are highly motivated to read perform better on measures of reading achievement (30) than do those who are less motivated; even slow learners, when properly motivated, are able to respond to complex source materials (10). Numerous research studies have shown that individuals who feel in control of their own learning also achieve better on tasks requiring reading (34). Moreover, we know that these individuals are also better at retaining relevant information than are their counterparts, who perceive others as being in control of their learning. Stone has drawn several implications from this research that can be applied to helping teachers overcome students' dislike and fear of

reading (34). For students who have feelings of low control over their ability to learn by reading, teachers can give more explicit instructions for completing a reading task and can structure learning activities so that students feel less dependent on the teacher for reinforcement. Also, teacher-imposed standards of excellence can be replaced by grading systems that take into account performance contracting and increased student responsibility for learning.

Whether an individual perceives ability, effort, task difficulty, or luck as the cause for success or failure in reading will influence his or her future expectations. For instance, a student who attributes success to luck and failure to lack of ability will more than likely feel personally inadequate and incapable of sustained achievement. If, in fact, low ability is the perceived cause (and not necessarily the true cause) that an individual dislikes or fears reading, a teacher can manipulate the learning environment so that the low ability reader is made aware of the relationship between personal effort and achievement. For example, a teacher might begin by helping the student persist in accomplishing a specific reading task, whether for pleasure or in relation to a class assignment. Once the student has perceived that persistence, not lack of ability, accounted for the positive outcome of a specific reading task, he or she is on the way to self-motivated learning. Even students "...who have had many failure experiences early on [can] become better achievers if they are given tasks at which they can succeed, and they learn to attribute failure to nonability factors" (36, p. 438).

Be the Focus is a strategy that can be used with unmotivated readers who have a low degree of self-confidence and who are unwilling to take risks (15). The strategy is based on Atkinson's theory about the need to

provide a learning environment wherein readers meet praise and support rather than failure (4). It also incorporates an inquiry approach to learning and emphasizes the development of categorizing, organizing, inferring, and verifying. A teacher who uses Be the Focus can provide each student with an equal opportunity to express opinions in a structured and safe, small group setting. The three phases of the strategy are:

The prereading discussion. In this phase, which takes approximately 20 minutes, the teacher presents in one statement (or at most a short paragraph) one important issue from the reading assignment. Students are divided into groups of three, and within those groups, they decide who will go first, second, and third (i.e., "be the focus" person) in responding to the teacher's statement. Each focus person is free to agree, disagree, or present new information relative to the statement. Each has two minutes to speak, after which the group takes two minutes to summarize its reactions and to designate the individual who will present the summary to the class during the whole group discussion. After the summary, the teacher emphasizes the new vocabulary that the students will need to know in the second stage of the strategy.

The silent reading stage. In this stage the students read their texts silently to discover which of their group summaries, which the teacher has written on the chalkboard, are substantiated, refuted, or not addressed by the textbook author. As they read, they make notes to remind themselves of the facts they will use in the postreading discussion.

The postreading discussion. In this final phase of the strategy, the teacher guides students' attempts to substantiate or refute their

prereading responses. Notes are made on the chalkboard to help students remember what they read. The unaddressed issues become springboards for a supplementary list of reading activities from which the individual student is free to choose.

If the teacher who uses Be the Focus prefers to substitute young adult books for the students' required content area textbooks, high interest, easy reading material is recommended. Easy material will help unmotivated, poor readers feel good about their ability as readers.

5. "Reading aloud is motivational. The teacher who reads aloud to students is a model who embodies the fact that reading can be fun" (29, p. 372).

The Books for Young Adults Poll, a combined effort of the College of Education and the School of Library and Information Science at the University of Iowa, is conducted annually. It samples the reading choices of tenth through twelfth graders. Using the results of this poll (or any similar poll that seeks students' opinions on books) can be helpful to the teacher who wishes to read aloud to students a few pages a day. A recent Books for Young Adults Poll turned up such favorites as these:

Author	Book	Publisher/Date
Asher, Sandy	Missing Pieces	Delacorte, 1984
Bethancourt, Ernesto T.	The Great Computer Dating Game	Crown, 1984
Coleman, Vila	Nobody Told Me What I Need to Know	Morrow, 1984
Howe, Norma	God, the Universe, and Hot Fudge Sundaes	Houghton-Mifflin, 1984
Perske, Robert	Show Me No Mercy	Abington, 1984
Ruby, Lois	This Old Man	Houghton-Mifflin, 1984
Sleator, William	Interstellar Pig	Dutton, 1984

Storytelling, too, can be a form of sharing books aloud. A sampling of young adult books that work well within a storytelling session follows:

Author	Book	Publisher/Date
Fox, Paula	One-Eyed Cat	Dell, 1985
Hall, Lynn	Just One Friend	Scribner's, 1985
Mazer, Harry	When the Phone Rang	Scholastic, 1985
Zindel, Paul	Harry & Hortense at Hormone High	Bantam, 1985

The important thing to keep in mind about reading aloud and engaging in storytelling is that these experiences may provide the student--especially the one who has never finished a book--with a feeling of the enjoyment that can come from "reading" and completing one. Also, reading aloud by the teacher can serve to expand a student's reading interests, particularly a student who has been unwilling to sample more than one type of writing.

6. "Conflict is part of our world and it presents itself in meaningful ways, which in turn, demand critical decisions from each of us" (24).

A motivational technique for making use of conflict so that it enhances content area learning is Lunstrum's plan for heightening students' interest in what they are reading (24). According to Lunstrum, there is a long tradition of using controversy in the classroom. Dewey, for instance, advocated introducing problematic situations in the belief that the insights arising from such situations would increase learning (11). From a psycholinguistic perspective, the model takes into account the notion that reading consists of interacting with an author as a reader, taking risks to predict meaning, and using one's background of

experiences to understand language (16, 33). Finally, from the field of psychology, the model is derived from the notion that inner conflict, or dissonance, will make a person feel uncomfortable until an equilibrium is once again established. That is, a reader who is faced with controversy will set his or her own learning goal in an attempt to reconcile opposing elements and thus bring about a reduction in dissonance (14). In actual classroom situations, a teacher who uses Lunstrum's technique might proceed like this:

Step 1. Orient the class to the idea of planned controversy as a means for sensitizing students to the need to read to settle points of contradiction and uncertainty. Be certain to assure students that their rights to privacy and to ideas not held by others will be respected.

Step 2. Establish background for the controversy by having students read primary source materials and view films or videotapes on the topic. Predictions made in advance of reading and viewing can be used to stimulate interest and build involvement. Always check or verify the accuracy of these predictions through post-reading discussions.

Step 3. Create an awareness of the controversy by involving students in a simulation in which they are forced to take positions and make decisions related to the controversy.

Step 4. Increase the dissonance level and then initiate activities for reducing it. If students remain relatively uninvolved even after participating in the simulation, create a role playing situation around a particularly emotional issue in the controversy. When the dissonance level is appropriately high, encourage students to read further to identify the motives or values that may have led someone involved in the controversy to behave as he or she did.

Adolsecent Reading Preferences

Finally, regardless of which guiding principle or sets of principles a teacher follows, he or she must keep abreast of students' reading preferences if students are to become lifetime readers. Until recently, our knowledge about adolescent reading preferences was based primarily on descriptive research that focused on library selections (25), book club orders (3), checklists of adolescents' favorite books (23), and guides for teachers, librarians, and parents (1, 8). Beyard-Tyler and Sullivan, however, departed from this descriptive approach of inferring preferences from books selected or read (6). They systematically manipulated two variables--preference for type of theme and preference for sex of protagonist--while carefully controlling for other variables that may affect reader preferences. There were 576 subjects representing grades 7, 9, and 11 in the theme preference study, and an additional 576 from the same grade levels in the sex-of-protagonist preference study. Students read the synopses of four contemporary novels. With respect to theme preference, there was a decided effect in favor of stories in which adolescents successfully overcome their problems as opposed to stories in which they meet failure or in which no solution is offered. There was also an apparent preference for same-sex characters, although girls' preferences for female protagonists diminish in strength as they grow older; boys' preferences for male protagonists grow stronger with age. However, as Beyard-Tyler and Sullivan speculate, it is probable that the recent and significant changes in sex-role patterns in this country may have an effect on adolescent preferences, especially if the expansion of sex roles among females becomes a part of an accompanying body of literature (6).

Summary

Although there is a shortage of research in the area of motivational techniques for developing lifetime reading habits among secondary school students, the literature written for practitioners is filled with a variety of ideas for stimulating reading. In this chapter, several guiding principles and suggested activities were presented for motivating secondary school students to become lifelong readers. The guidelines included (a) permitting students to read books based on their needs, interests, and abilities; (b) encouraging students to read a variety of materials on the same topic; (c) providing students with many opportunities to read; (d) showing students that they can succeed in reading; (e) modeling for students through reading aloud that reading can be fun; and (f) introducing students to controversy as a technique for heightening their interests in reading materials. Each of these guidelines is accompanied by examples of books, strategies, or classroom activities that can be used by teachers to enhance the content of the various subject matter areas.

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LEARNING FROM TEXT

What do secondary school students learn from text?

According to the latest National Assessment of Educational Progress of reading trends in the United States (conducted between 1971 and 1984), "virtually all 13- and 17-year-old students can read basic material, and 84 percent of the 17-year-olds still in school have acquired the intermediate reading skills and strategies necessary to understand specific and general information in relatively lengthy reading passages" (21, p. 6). From these data, therefore, it would seem that secondary school students are able to learn from text, particularly text that requires only intermediate level reading skills. The more difficult reading skills and strategies (e.g., those requiring students to restructure and synthesize textual material) are demonstrated by less than 5 percent of the 17-year-olds and less than 0.3 percent of the 13-year-olds. Understanding why students are not experiencing success with the more difficult kinds of reading will be a prime research objective in the decade to come.

Here we look at two factors that influence how and what students learn from their textbooks: text structure and the reader's background knowledge.

Text Structure

Text structure refers to the hierarchical arrangement of sentences and paragraphs within a larger piece of text. The hierarchy exists so that some content can be superordinated or subordinated to other content. Some of the more common structures found in expository text are these four organizational patterns: simple listing, time order, comparison/contrast, and cause/effect (14). Literary texts do not lend

themselves to such clear-cut distinctions in text structure, though typically they are lumped together and described as having narrative-type structure. One example of a narrative structure is the common arrangement of content in children's stories, which includes people, their goals, and the actions they take to reach their goals.

Although text structures are typically classified as being one of two general types--expository or narrative--some theorists (27) have argued that this conventional text classification scheme is misleading and should be abandoned. In its place, they would substitute a classification scheme that takes into account the various psychologically relevant properties of all text, such as the underlying organizational structure, sentence complexity, vocabulary difficulty, and discourse function (i.e., whether text was written to persuade, inform, entertain, or aesthetically please). Despite our intellectual support for the latter classification scheme, the more conventional labels of "expository text" and "narrative text" are used here because they permit greater ease in discussing the major research findings related to text structure.

Expository text. A fairly large body of literature points to the conclusion that the better text is organized, the better it is remembered (3, 7, 12, 17). Specifically, the work of Meyer and her associates (18) has demonstrated the effectiveness of the structure strategy in providing ninth graders with a systematic learning and retrieval aid. The use of the structure strategy involves a reader in following the organizational pattern of a text. For example, students who follow the author's comparison/contrast structuring of a textbook chapter on deserts of the world will look for relationships in text that subsume all or large chunks of information pertaining to deserts in the Eastern Hemisphere.

They do this so that they can contrast that subset to a similarly derived subset of ideas about deserts in the Western Hemisphere.

In the Meyer et al. study (18), students who did not use the structure strategy merely listed ideas from the passages they had read. There was no evidence of any attempt to interrelate the ideas. In contrast, the students who did use the structure strategy compared viewpoints in the case of the loss of body water passages, where doctors' views were contrasted with coaches' views on voluntary dehydration. Similarly, they matched solutions to specific components of the problem in the case of the supertanker passage, where various solutions to the problem of oil spills from supertankers were described. Compared to the nonusers, students who used the structure strategy also had better recall of the textual information.

The practical applications of this line of research are somewhat limited by the type of text students encounter in their regular content area course. Rarely, for instance, do students have the opportunity to read materials that are as well-formed as those that appear in research studies. Instead, chapters that appear in actual textbooks frequently contain a mix of organizational patterns. It is not uncommon, for example, for students to encounter simple listing, time order, comparison/contrast, and cause/effect in one chapter. When this situation occurs, the teacher may choose to focus students' attention on the dominant organizational pattern or, alternatively, on the pattern that is the most useful from a meaning point of view. Herber's (14) organizational patterns guide (see Table 1 for an example) is one type of instructional aid for focusing students' attention on a particular text structure.

Table 1

Example of a Time-Order Pattern Guide

Content Objective: To trace the spread of alchemy across continents and centuries.

Part I. Directions: Authors use the time-order pattern when they want to show you how something grew or developed. Below is a list of developments which mark the growth of alchemy. Beside each development is a blank. You are to find the "time" associated with that development and write it in the blank. (Hint: Sometimes authors give you a date; other times, they may use a signal word such as "later" or "thereafter.")

"Time" (Answers given)	Development
In the beginning	a. Alchemy was rooted in the Bronze Age cultures of Egypt and Mesopotamia. (p. 24, para. 2)
4th Century, A.D.	b. Through wars and trading, alchemy spread to other cultures so that it was not surprising to find a Chinese Alchemist. (p. 25, para. 1)
Later	c. As the Moslems conquered the ancient lands where alchemy had begun, they adopted it. (p. 25, para. 6)
Still later	d. Arabic alchemists developed the theory that metals were composed of mercury and sulfur. (p. 26, para. 2)
By the 14th Century	e. The great interest in alchemy died down. (p. 27, para. 1)
16th Century	f. Alchemists turned from trying to change metals into gold and began to prepare medicines. (p. 27, para. 5)

Part II. Directions: Below is a list of statements. If you agree with a statement, place a check in the blank next to the statement in the "Agree" column. If you think the author would agree with you, put a + in the blank next to the statement in the "Author" column. Be ready to discuss your answers with other members of your group.

Agree	Author	Statements
_____	_____	1. Every scientific discovery makes the one preceding it seem silly.
_____	_____	2. The past is but the beginning.
_____	_____	3. What we do in life depends on what others did before us.

For purposes of sorting out the hierarchical relationships among ideas, students must first be able to recognize the different types of text structure common to their subject matter texts. Initially, teachers may cue students to rely on signal words such as "however," "although" (comparison/contrast text structure), or "therefore," "consequently," and "as a result" (cause/effect structure). Vacca, for example, has provided a series of verbal signals (see Table 2 below) that are useful in cueing the reader about the different text structures (29, p. 143).

Table 2

Verbal Signals for Four Text Structures

Enumeration	Time Order	Comparison/Contrast	Cause/Effect
to begin with	on (date)	however	because
first	not long after	but	since
secondly	now	as well as	therefore
next	as	on the other hand	consequently
then	before	not only...but also	as a result
finally	after	either...or	this led to
most important	when	while	so that
also		although	nevertheless
in fact		unless	accordingly
for instance		similarly	if...then
for example		yet	thus

However, teaching students to recognize different patterns of text organization is not enough. Students also must be shown how knowing the structure of a text helps them to understand the relationships among ideas in the text. For example, they can use text structure to locate main ideas and supporting details. In fact, some research suggests that "instruction in identification and utilization of text structure should precede instruction in identification of main ideas" (17, p. 137). This is a departure from the traditional approach: teaching students to find main ideas so that text relationships such as cause and effect can be followed.

As Pearson and Camperell (22, p. 28) have noted, "That text structure influences comprehension...is not really at issue; what is at issue is the precise way in which the influence is exerted." More information is needed on how the use of text structure influences what students learn from text. Use of text structure initially to comprehend an author's message is thought also to aid students' retrieval of that message at a later time, perhaps on a test. Some researchers attribute this ease of retrieval to the increased depth of processing required when students search their texts for meaningful relationships among superordinate and subordinate ideas (11).

Another approach to understanding how the use of text structure influences what students learn from their reading involves looking at less than optimally constructed text. When textbook writers ignore certain principles of good writing and they fail to signal explicitly the reader as to how the the text is structured, we say that the text is inconsiderate (3). Inconsiderate text, as its name implies, makes learning from print more difficult. A text is judged on its degree of "considerateness" according to the following criteria:

1. Structure--A plan for how ideas are arranged and connected in text.
2. Coherence--The clarity of relationships among ideas both within and across sentences and paragraphs.
3. Audience appropriateness--A match between what the reader already knows and what the text purports to teach.
4. Unity--The degree to which only relevant information is included to support the author's assumed purpose.

Of these text features, structure has received the most research attention (12, 17), followed by coherence (6, 13, 22) and audience

appropriateness as it relates to prior knowledge (2). Unlike the other three text features, unity has received little or no attention. In fact, according to Armbruster and Anderson, "a case for the importance of unity can be made more firmly on theoretical than empirical grounds" (3, p. 33). The basis for the theoretical argument is Miller's work, which suggests that short-term memory constraints may prevent the integration of information found in disunified text with the propositions that exist in short-term memory (19). Thus, text that adheres to the unity maxim may guard against short-term memory overload and subsequent comprehension failure.

Narrative text. Studies at the secondary school level that focus on the influence of narrative text structure on students' learning from text are less numerous than those dealing with exposition. Most researchers interested in studying the effect of narrative text structure on learning have tended to focus more on the young child than on the student enrolled in the middle, junior, or senior high school. Two exceptions, important because of their large-scale designs, are studies conducted as part of the National Assessment of Educational Progress (NAEP) (20) and the International Evaluation of Educational Achievement (24).

The NAEP report on students' ability to read, think, and write pointed out that certain characteristics--such as genre, form, and content--of a narrative selection influence the kinds of response students produce (20). For example, selections that contained metaphors embedded in unfamiliar themes produced greater inferential responses in students than any other selection type. In contrast, selections dealing with themes more closely tied to students' own backgrounds of experiences produced a larger percentage of personal-analytic responses.

The International Evaluation of Educational Achievement focused on literature education in ten countries, including the United States (24). Basically, the results of this study and the NAEP are in agreement: The nature of a selection definitely shapes the reader's response. In short, whether we are talking about the influence of expository text or narrative text, the following generalizations seem to hold (5, p. 115):

a. Texts, including expository and literary [narrative] texts, differ considerably according to their organizational structure.
b. These different structures require different reading strategies.
c. Readers' ability to employ these strategies varies with their cognitive skills and prior knowledge.

What effect does prior knowledge have on learning from text and how can teachers help students use their prior knowledge?

An interesting paradox about learning from text is that you must know a great deal about a topic before you can learn more. An example drawn from the work of Charniak, a researcher in the area of artificial intelligence, illustrates just how dependent we are on our background experiences, or prior knowledge, to comprehend even a simple, two-sentence text such as this one (10):

> The little girl heard the ring of the ice cream man's bell.
> She ran inside to get her piggy bank.

As readers, we have to know that an ice cream vendor sells a product that tempts young children and requires money in the amount that a little girl is likely to have in her piggy bank. More specifically, we have to know that piggy banks usually hold coins, and so on. Although none of this information is stated explicitly, we used our prior knowledge about ice cream vendors and the likelihood that the little girl would want some ice cream to infer that she dashed inside to get her money before the vendor moved on.

If the simple, two-sentence text that you just read made sense, it is probably because you evoked your buying-ice cream-from-a-vendor schema. The term schema (4) is used to represent information that is stored in an organized way in your memory and that is based on your repeated encounters with a particular person, place, thing, or event in the past. Once evoked, your buying-ice cream-from-a-vendor schema provided you with a framework for making sense of the text. For instance, it created the expectation that the little girl would want some ice cream, that getting the ice cream would involve paying money, and that the piggy bank would contain money.

Cognitive psychologists like Rumelhart have suggested that prior knowledge facilitates learning from text because the reader can use it to fill the empty "slots" of a partially completed schema (25). In our example above, having prior knowledge about the function a piggy bank serves would let us fit the incoming text information more easily into our buying-ice cream-from-a-vendor schema. That is, our model, or interpretation, of what the author has attempted to communicate is gradually refined until we have a sense that the meaning we have constructed makes sense. One's prior knowledge of a situation is not sufficient in and of itself; having the appropriate context in which to make sense of what one reads is also important.

A widely quoted passage from Bransford and Johnson illustrates the importance of an appropriate context for determining the meaning of print (6, p. 205). Read the following passage and then, if it doesn't make sense, refer to the illustration on the next page.

> If the balloons popped the sound wouldn't be able to carry since everything would be too far away from the correct floor. A closed window would also prevent the sound from carrying, since most buildings tend to be well insulated. Since the whole operation depends upon a steady flow of electricity, a break in the middle of the wire would also cause problems. Of course, the fellow could shout, but the human voice is not loud enough to carry that far. An additional problem is that a string could break on the instrument. Then there could be no accompaniment to the message. It is clear that the best situation would involve less distance. Then there would be fewer potential problems. With face to face contact, the least number of things could go wrong.

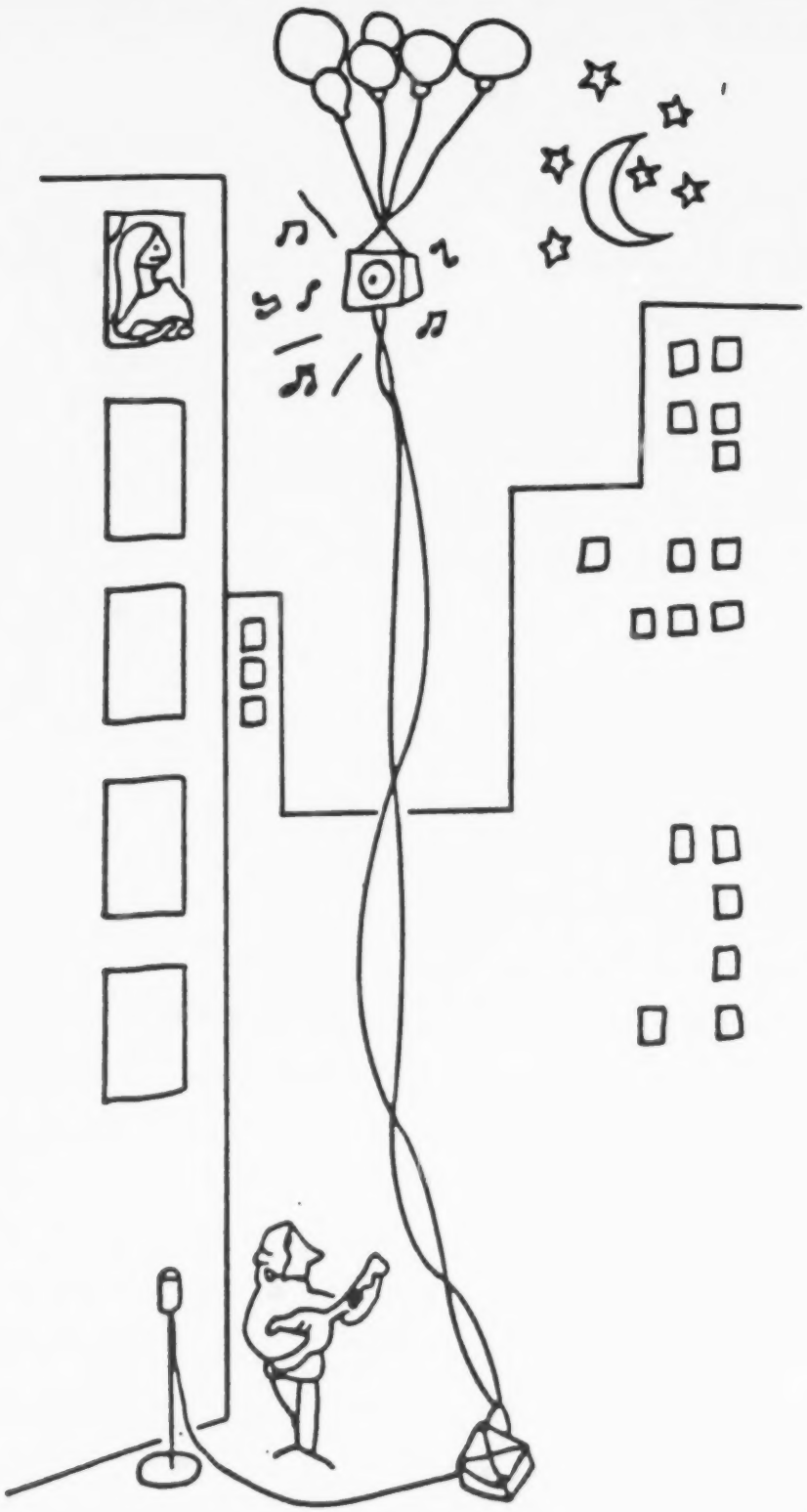

Figure 1

Appropriate Context for the Balloon Passage

Helping Students Use Their Prior Knowledge

John Carroll, an educational psychologist, pointed out that a student's learning is a function of the time spent on learning divided by the time that the student needed to learn. Mindful of Carroll's principle of learning, it seems reasonable to suggest that a student's degree of success in using his or her prior knowledge to learn from text will be in direct proportion to the quality of instruction that is provided (8). Some guidelines for what that instruction might look like are adapted from an excellent chapter on learning to learn from text by Tierney and Pearson (28).

Guideline #1. Prior to reading, the teacher would assess whether there is a match between what an author assumes students will know and what the students' background knowledge actually is. This assessment might be as informal as discussing with students what they know about a specific topic prior to making a textbook assignment related to that topic. Or it might involve using PReP, a strategy especially designed to assess students' prior knowledge of a specific concept (15). (See chapter on metacognition for a description of PReP.) Knowing the availability of a particular schema enables the teacher to develop the necessary concepts with the students prior to their reading the text. Even more important than assessing the availability of a particular schema, however, is the knowledge of whether students hold misconceptions about a topic. Failure to take into account students' conflicting and culturally specific prior knowledge may result in inaccurate learning from text (1, 16). In short, to neglect assessing students' prior knowledge is to invite potential problems in comprehending what might otherwise be considered appropriate learning materials.

Guideline #2. Determining whether schema engagement problems are present prior to reading, during reading, and/or after reading is another way to help students make use of their prior knowledge. This guideline assumes that readers possess accurate and appropriate background knowledge but, for one reason or another, do not use or engage it. An example of an instructional strategy that is useful in helping students engage their background knowledge about a topic is a prediction guide (14). Essentially, this guide consists of several statements related to the to-be-read material. Students place check marks before the statements that they believe they will find discussed in that text. After reading, students compare what they predicted they would learn with what they actually learned. Some prediction guides include distractor statements as well as the text-related statements.

Guideline #3. During guided reading, the teacher might need to assess whether students' problems in learning from text are the result of being "too reader-based" or "too text-based" in their approach to understanding the author's intended message. Students who tend to be too reader-based are not aware of what they don't know. Their insensitivity to comprehension monitoring may be the result of falsely assuming that they know more about a familiar topic than they actually do. Several options are open to the teacher in terms of helping this type of reader. For example, the teacher might call attention to subtle but important text signals such as time-order words ("before," "when," "after") in a science experiment. Or the teacher might encourage students to monitor their interpretation of a text by inserting questions after each of several key paragraphs. Students who exhibit the opposite problem--that of being too text-based--may deny what they know to be true from their experiences outside of school, perceiving those experiences to be of no

use in school-related tasks such as reading (26). This type of reader can be helped to apply background knowledge through prereading and postreading discussions in which the teacher praises the student for seeing relationships between inside- and outside-of-school learning.

Guideline #4. As a postreading followup, the teacher would assess the adequacy and the extent of a student's understanding of text. At stake here are two issues: the notion that adequate understanding is relative to an individual's purpose for reading and that the real test of learning is whether it is transferred. What is considered adequate understanding may vary with the person's purpose for reading; for example, one may read to get the gist of a passage or to memorize specific details of that passage. Both are legitimate purposes, and as long as teachers assess according to purpose, determining the adequacy of a given response should be straightforward (9). The second issue--whether students can apply what they have learned in one situation to a new but similar situation--is somewhat more difficult to measure. Secondary teachers, unlike elementary teachers, do not have the opportunity to observe how students may attempt transfer of learning from one subject area to another. At best, secondary level teachers must rely on teaching for transfer. One simple but effective way for teachers to foster greater transfer, and thus independence, in student learning is to hold postreading discussions in which students are given an opportunity to justify their responses on the basis of their prior understanding interacting with incoming text information. The resulting modification or refinement of students' existing schemata will help to ensure that they are that much more ready to learn the next time. In short, analyzing the effect of prior knowledge on learning from text may enable students to learn how to learn.

Summary

Secondary students do learn from text, but they are proficient in applying only basic and intermediate level skills and strategies to what they read. Based on data reported for a 13-year period by the National Assessment of Educational Progress concerning reading trends in the United States, secondary school students lack the necessary skills for restructuring and synthesizing difficult material.

The structure of a textbook's content influences comprehension. Students who use their knowledge of how a text is structured comprehend and remember more information than students who ignore the structure.

Encouraging students to use their prior knowledge of a topic can lead to improved comprehension of text. Teachers who include in their instruction plans for tapping and assessing students' prior knowledge before, during, and after reading can assist students in developing the necessary concepts for understanding what they read.

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COMPREHENSION/THINKING SKILLS

What kinds of classroom instruction promote increased comprehension of text and learner independence?

There is currently no shortage of methods available for teaching students to comprehend. Professional journals and methods texts regularly feature one teaching strategy after another, all specifically designed to increase students' ability to comprehend text. No wonder, then, that subject matter teachers often find themselves in the difficult position of choosing strategy A over strategy B, or even of relying entirely on the lecture method.

As one might expect, not all instructional strategies are equally effective in promoting students' comprehension at the secondary school level. Some are backed by conventional wisdom or a long tradition of use, but there is no empirical basis for believing in their effectiveness. In their place, we recommend substituting instructional strategies that have withstood the rigor of scientific investigation, especially if evidence suggests that these strategies also facilitate transfer of learning (and, hence, learner independence).

A convenient way to categorize the various instructional strategies for teaching comprehension is to use the elements of effective learning as category headings. These elements include:

1. attending selectively to the most informative aspects of an instructional stimulus,
2. encoding new material effectively so that it will be easily retrieved later on, and
3. knowing when and how to use a strategy effectively (11, p. 333).

Strategies for Selective Attention

Instructional strategies that focus students' attention on material that is most relevant to comprehending the text are thought to create expectancies within the learner. These attention-focusing strategies typically include either activities that enrich or questions that activate learners' background knowledge prior to reading a selection.

Enrichment. Strategies that enrich background knowledge add relevant information to the students' existing store of related information. Four successful methods for enriching background knowledge include the use of analogies, oral previews, thematic organizers, and structured overviews. From some of the research that has looked at the use of analogy and its transfer effect, we have learned that students' attention must be focused on the task of finding the relationship between the two sets of information in the analogy if it is to be a successful strategy for increasing comprehension (18). For example, the analogy that uses the word curtain to explain fog will only be understood if students associate the characteristics of a blocked view with the word curtain.

A fairly long line of research has strengthened the case for presenting students with oral previews of a selection immediately prior to their reading it. These previews, which attempt to relate the students' prior knowledge to the content of the selection as well as provide them with specific information about that content, have been effective with students at various grade levels and with different types of texts: for example, with 11th-grade students of average ability who were assigned two short stories to read (13), with low-ability junior high students reading short stories (14), and more recently with 8th-grade students reading social studies texts (15). Typically, an oral

preview consists of the following: (1) an interest-capturing section, which bridges the gap between what the students know and what the text contains; (2) a discussion question to encourage students to speculate about the to-be-read material; (3) an informational section that provides the necessary background knowledge for understanding the text; and (4) directions that give students a purpose for reading.

Like the oral preview, the thematic organizer is an adjunct learning aid that explicitly defines the central theme of a passage and relates the theme to the students' prior knowledge. It differs from the oral preview in that it provides cohesion among the text's implicit superordinate and subordinate ideas by means of a structured overview (see below). Using a thematic organizer, Risko and Alvarez reported enhanced literal and inferential comprehension for students of different ages and ability levels (good/poor readers), as well as transfer of learning for students at the elementary, secondary, and college levels (1, 22).

High school social studies and science classes have served as the primary testing grounds for an intuitively appealing adjunct learning aid known as the structured overview (2, 9). (See Figure 1)

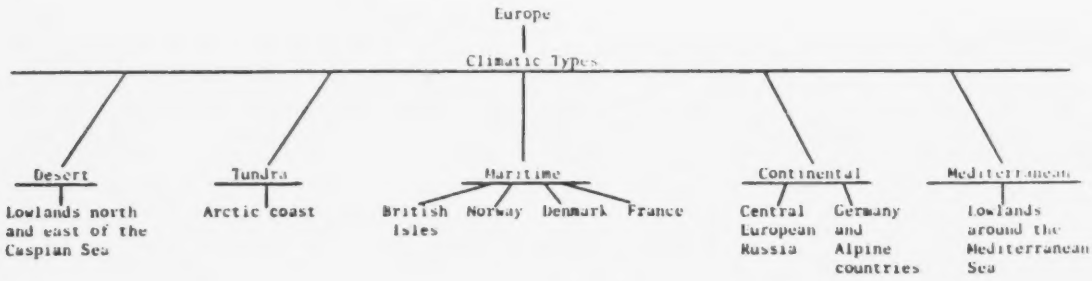

Figure 1

Example of a Structured Overview

The structured overview is a visual representation of a selection's key concepts. A hierarchical ordering of those key concepts is thought to represent the text's logical structure and to relate new content to relevant subsuming concepts learned in the past. Although the research is mixed, students with high verbal ability generally benefit from using the structured overview more than do students in any other ability group (21).

Activation. Asking questions is one approach that teachers can use to help secondary school students selectively activate their background knowledge prior to reading. Although few studies that we reviewed included only secondary school students as subjects, the conclusions we present are based on findings that emerged in numerous contexts with numerous age groups. There is general agreement in the research literature that answering questions affects reading comprehension in a positive manner. Students who read a passage and answer questions about it generally learn more than students who only read the passage (17, 20, 24).

Most reviews of written questions indicate that the placement of questions is a powerful factor in their impact on learning. In general, the studies indicate that prequestions (i.e., questions presented before reading) tend to improve students' learning of targeted information. To illustrate, a passage might briefly describe the events that led to the Civil War. Teachers who prepare their students for the passage by asking, "What was the fundamental cause of the Civil War?" could expect their students to grasp the events as well as the fundamental cause better than students who received no prequestions. Other teachers might require their students to "read in order to be able to list the events leading to the Civil War." Again, those teachers could expect their

students to learn the events better than students who received no question or direction before reading.

It is important to know that the facilitative effect of prequestions is limited to the targeted information at the expense of incidental information. Students who received prequestions about the causes of the Civil War most likely would miss information that related to other concerns. Prequestions inhibit learning of information not relevant to the question. Thus, teachers who wish primarily to direct students to specific information should rely on prequestions.

Teachers who want students to gain an overall, general understanding of a passage should rely on postquestions (i.e., questions asked after reading). Like prequestions, postquestions seem to improve students' learning of information, although postquestions do not have as strong an impact on targeted information. The special value of postquestions is their impact on readers' grasp of information that is not specifically tapped. This impact might be due to students simply attempting to learn everything possible in preparation for the upcoming assessment.

To understand and remember the different effects of question placement on learning, one might equate questions with firearms. Prequestions are like rifles. They produce a powerful impact on their target, but they have little impact on the area around the target. On the other hand, postquestions are like shotguns. The effects they produce are somewhat moderate when compared with other instruments, but they affect the area around the target to a greater degree than other devices. Teachers who plan to use questions to activate learners' background knowledge prior to reading need to be aware of the different information that pre- and postquestions will tap.

Encoding Strategies

When students attempt to read their content area texts, they are often handicapped by a limited knowledge of the subject matter and a lack of an effective strategy for committing the material to long-term memory in a form that is easily retrievable. If students are to be successful in learning, they need to develop expertise in using two fairly common, but specialized, encoding strategies: elaboration and organization.

Elaboration. Elaboration is a three-step strategy. Students trained in its use are first taught to recognize when they need to remember something. Second, they are taught to check for a basic understanding of what it is they want to commit to memory. Finally, they are taught to engage in an action sequence to reach their goal of remembering the target information. This sequence of events (when, what, and how) was taught to a group of 7th-grade students during regular school periods of 50 minutes each day for 10 days (11). A variety of reading passages (e.g., math, history, science, and literature texts; directions for the Heimlich maneuver; a Superman story) provided students with materials on which to practice the elaboration strategy. Students who were taught this method were compared to a control group on a posttest. Both groups were asked to study new material, were told to expect a test on the material later, but were not prompted to use the elaboration strategy. The students in the trained group performed significantly better than those in the control group. An important outcome of this research was evidence of transfer of learning (12). In general, the elaboration strategy research suggests that readers who contribute what they know to the information in the text increase their chances of remembering the textual material. One explanation for the success of the elaboration strategy is that it helps the reader bridge

the gap between the new (textual information) and the known (the reader's prior knowledge).

Organization. Organization, the other strategy that leads to effective encoding of information, includes summarizing skills. Brown and Day's five rules for summarizing are, in order of increasing difficulty (7):

- delete trivia in a text,
- delete redundancies,
- substitute a superordinate term for several subordinate ones,
- select the main idea, and
- invent the main idea if one is not present in the text.

Interesting findings regarding individual differences have surfaced during studies involving the summarization strategy. In one study, good and poor 8th-grade readers exhibited marked differences in summarizing ability, even in their sensitivity to what was important in expository text adapted from tradebooks and social studies, science, and reading textbooks (26). Unlike the good readers, poor readers chose as important information that which held high personal interest for them, but not the information the author had placed high in the text as a sign of its importance.

Variations on the summarization strategy continue to proliferate. An interesting research study by Bean and his colleagues (3) modified Brown and Day's summarization rules to include these five steps:

1. Selection: Locate a topic sentence that organizes all the ideas in this section of the chapter.
2. Invention: If there is no clear topic sentence, invent your own.
3. Generalization: Write a statement that organizes the ideas in this section.

4. Questions: Write up to three questions based on the general statement.

5. Conclusion and Evaluation: Write the position you support and, if possible, how you might test the truth of this position.

High school students enrolled in two sections of an honors world history class participated in the study (3). Consistent with several earlier studies, the findings indicated that summarization training facilitated students' ability to synthesize expository text and to present it in a brief and well-organized fashion. However, even with the addition of the questioning step, students trained in the summarization strategy did no better than the control group students on tests of comprehension and selection of key ideas.

Mixed results as to the effectiveness of a strategy (such as summarizing) demand some sort of explanation. First, like so much of the educational research literature on strategy training, it is difficult to operationalize a strategy to the point that it can be taught exactly the same way in a replication of the study. Second, as Graves, Prenn, and Slater (16) have pointed out, one has to remember that a negative or positive finding from one study here--or another study there--may be accounted for by the variation that occurs naturally from one grade level to the next or from one version of a procedure to the next. What may work for high school students may not work for seventh graders.

A growing number of researchers are beginning to test the efficiency with which students at the early levels of secondary schooling can be taught to summarize content area materials. Taylor and Beach, for instance, developed a hierarchical summary strategy that they used in a study of seventh graders enrolled in a suburban junior high school (23, p. 139). (For an example of a completed hierarchical summary, see

Figure 2.) Students in the Taylor and Beach study were taught how to produce a postreading hierarchical summary of their social studies assignments. Briefly, the summarization strategy consisted of these six steps:

1. Students made a skeleton outline by drawing two lines at the top of a sheet of paper, which would serve later (step 6) as a place to record the key idea of the passage.
2. For every section (designated by a subheading) in the passage that they read, students listed a letter down the left side of their paper (see Figure 2).
3. After students had read each section and then generated their own main idea statement for that section, they recorded the statement next to the appropriate letter.
4. Then they listed two or three supporting details under each main idea statement.
5. Students generated their own topic headings, wrote the headings in the left margin of their paper, and then joined sentences that were on the same topic.
6. Finally, students generated the key idea for the whole passage and wrote that idea at the top of of their paper (see Roman numeral I in Figure 2).

The results of the study indicated that students who learned to produce hierarchical summaries over a seven-week period (one hour per week) recalled unfamiliar but not familiar social studies material better than the control group. The group having hierarchical summaries also performed better than the group that was involved in conventional question and answering tasks. Further, hierarchical summary training had a positive effect on the students' expository writing.

I. Johnson developed many programs to fight injustices and poverty.

A. Lyndon Johnson became President of the U. S. after Kennedy was assassinated.
Hard worker, tried to carry out some of Kennedy's programs.

Civil Rights

B. Johnson fought for civil rights law.
Purpose: To protect blacks from discrimination in hotels and restaurants; blacks had not been allowed in some hotels or restaurants in the South.

C. Johnson persuaded Congress to pass a law ensuring all people the right to vote.
Protected black people's right to vote; literacy tests now illegal.

Great Society Programs

D. Johnson started a "war on poverty."
Job training, education for poor people, plans for a "Great Society."

E. Johnson persuaded Congress to develop a medicare program.
For people at least 65 years old, hospital bills paid, doctor's bills paid in part.

F. Johnson persuaded Congress to pass a law giving money to schools.
Purpose: To improve education of children from poor families, one billion dollars in aid to schools.

Figure 2

An Example of a Hierarchical Summary
for a Three-Page Social Studies Text Segment Containing
One Heading and Six Subheadings

Knowing When and How to Apply Strategies

The teacher's role in helping a student learn how and when to apply a particular strategy cannot be overemphasized. Drawing on their own experiences and upon the research of others (6, 8, 25), Vaughan and Estes developed the following suggestions for teachers (25, pp. 151-152):

1. Teach students strategies for learning from text in meaningful context. As Herber and others have noted, learning strategies

that are taught outside the content area in which they are to be used do not transfer (19). Students need to be shown that the strategy they are learning has direct application in the course in which they are enrolled, and, more specifically, to the material they are required to read in that course.

2. Model or demonstrate for students how you would use certain strategies. Sometimes this modeling may take the form of reading orally from a passage that you then go on to paraphrase. As you paraphrase the information, explain why you are leaving out some information, substituting a common term for a more esoteric terms, or merely incorporating large chunks of information under one superordinate descriptor. In sum, make public your thinking about the strategy you are modeling.
3. Encourage students to expand their repertoire of learning strategies by showing them how to add new strategies to old. For example, if they already know how to distinguish information that is important from that which is unimportant, show them how they have the foundation for learning to paraphrase. Or demonstrate how making decisions about what will or will not be read in a text forms the basis for learning about comprehension monitoring strategies.
4. Provide students with opportunities for feedback as they practice newly learned strategies. Paired learning activities can provide students with safe settings in which they can explain to a peer <u>what</u> strategy they learned, as well as <u>how</u> they went about learning it. Daniel Fader, in fact, built his highly successful writing instruction program around feedback given by groups of three students working together. These

heterogeneously grouped triads were responsible for approving each member's written work before it was turned in to the teacher (10).

5. Evaluate students in a manner that reflects your concern for what they understood, not what they merely remembered. Ultimately, this means relying less on closed-book, recall types of tests and more on tests that ask students to make connections between concepts they have learned. Students need to know that the strategies they have learned will contribute to their improved performance on tests that ask them to clarify, elaborate, and apply what they have read.

Direct instruction and modeling are two other means for developing in students the ability to know when and how to apply strategies for learning from text. By direct instruction, we mean the domain of instructional behaviors that are usually associated with the whole-class, teacher-centered orientation described by Brophy and Good in their review of the research on teacher behavior and student achievement (5). Direct instructional behaviors are aimed at promoting on-task student behaviors. For example, a teacher who wanted to help students learn how to attend to an author's signaling of text structure might inform his or her class about the need to look for an alternative point of view when "however," "but, " or "on the other hand" appear in a passage. Instructing students to be alert for such verbal signals would serve to focus their attention and keep them on task.

Modeling involves thinking aloud while demonstrating the "how to" aspect of strategy teaching. A small, but growing, body of research suggests that thinking aloud is a valuable technique to use in helping students identify and use certain comprehension strategies (4). Thinking

aloud is an attempt to let students "in," so to speak, on the covert mental processes that a teacher may go through in applying a particular strategy to a particular text. For example, a physics teacher interested in teaching the structure strategy (see Chapter 4 for more information) might skim a portion of an assigned chapter on Newtonian mechanics and make these comments, orally: "Hmmm, I see that the author has contrasted Newton's theory of motion with the impetus theory. I must remember to pay close attention to the differences in those two theories when I get to that part of the chapter. I'll try to look for any verbal signals that the author gives. I'll also look for relationships that exist between the two theories--particularly, those relationships that embody smaller bits of information."

Summary

Focusing attention on relevant material is thought to create expectancies within the learner. Attention-focusing strategies that enrich or activate students' prior knowledge include using analogies, oral previews, thematic organizers, and structured overviews. Each is known to vary somewhat in its effectiveness, depending upon the learner and the setting.

Committing information to long-term memory in a form that is easily retrievable is essential to content learning. Two strategies for aiding students in this type of learning are elaboration and organization. Elaboration involves the learner in a three-step process: recognizing a need for remembering something, checking for a basic understanding of what is to be remembered, and engaging in an action sequence for remembering the target information. Organization includes primarily summarizing skills.

Direct instruction is one way of helping students learn when and how to apply a strategy effectively. Knowing when and how to apply strategies can also be modeled by the teacher. Modeling for students what they are expected to be able to do when they read their content area textbooks places the instruction of learning strategies in a relevant context--the content area classroom. Modeling provides students with an explanation of why a strategy is useful and how it works.

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VOCABULARY

What is the relationship between vocabulary and reading comprehension?

Comprehension of individual words is strongly related to comprehension of passages. This logical relationship is supported by a great deal of research. For example, correlations between vocabulary test scores and passage comprehension test scores for U. S. high school students generally fall in the .60s (2). Correlation coefficients of this magnitude are considered to be substantial. In studies of passage readability, measures of word difficulty consistently have been found to predict passage difficulty (24). There is little doubt that readers who do well with individual words also tend to do well with passages.

Anderson and Freebody describe three views of why vocabulary is so strongly related to comprehension (2). One view, the instrumentalist position, contends that understanding words is the primary device readers use to understand passages. Knowing the individual words of a passage is thought to be prerequisite for knowing what all the words add up to. Educators who teach students the new words from a passage before having students read the passage follow a practice that is consistent with the instrumentalist position. A second view, called the aptitude position, hypothesizes that general verbal talent underlies both word and passage understanding. Mental agility is thought to affect students' capacities to acquire vocabularies as well as to comprehend passages. Students with quick minds when dealing with verbal information do well with vocabulary as well as with passages. Teaching practices that focus on developing students' strategies for making sense of language are in line with this aptitude position.

In the third view, general knowledge is stressed as the common feature underlying word and text comprehension. The contention of the knowledge position is that what readers already know about the world affects their abilities to assimilate the meanings of words as well as passages. Readers with deep and broad understandings of the world have the background to know what their textbook and text passages are referring to. Readers' backgrounds of information, organized in schemata, are brought into play when meaning is assigned to verbal information. Biology teachers who present new vocabulary in an organized, meaningful framework--such as presenting the features of crustaceans, myriapods, arachnids, and insects when introducing a unit on anthropods--follow a teaching practice consistent with the knowledge position.

Each of the three views about the strong relationship between vocabulary and comprehension probably is correct, at least to some extent. The instrumentalist, aptitude, and knowledge positions shed light on why students who understand individual words also tend to understand passages. However, no one of the positions is thought to exclude the others; none of the three is fully supported by research as the single explanation of the relationship between vocabulary and comprehension. Thus, a program of vocabulary instruction that includes three--the instrumentalist, aptitude, and knowledge positions--seems appropriate.

What does research show is the best way to teach vocabulary?

Determining which words students should be taught is an issue that deserves attention before describing how to go about teaching the words.

After all, the number of words in printed school English is estimated to be about 88,500 (29). Teachers need to be selective because they cannot present all the English words to their students.

Approaches to Selecting Words to be Taught

Two approaches, isolated and functional, are available for determining which words to teach students (19). The isolated approach consists of locating lists of randomly arranged words that are deemed appropriate for particular grade levels. The lists typically are presented word by word, with each word's pronunciation and definition specified. This approach is isolated because the words are not connected by topic (e.g., weather) or by spelling pattern (e.g., tion). The functional approach consists of identifying words that are important to units of subject matter and then presenting the words as the units come up during the school year.

Although the isolated approach is easily managed, its effectiveness has been criticized (20). The functional approach generally is recommended by secondary reading methods texts because terms are tied together meaningfully. Another case for the functional approach is that many words assume different meanings in the different subjects, and content area teachers are more likely to emphasize the word meanings that are particular to their area (9). For example, the words in the following list of relatively common terms are defined one way in mathematics, another in science, and still another in social studies:

root	satellite	plain
table	dividend	plot

Assuming that a functional approach is employed and students are taught new vocabulary when the words occur during units of study, several issues remain.

Vocabulary Instruction and Passage Comprehension

The instrumentalist position on the relationship between vocabulary and passage comprehension emphasizes the role of understanding the individual words contained in passages. Those who accept this position advocate teaching students the meanings of key words before these words are encountered in text. Teaching the vocabulary of a passage before reading is a standard recommendation in directed reading activites, although the prevalence of this practice in secondary-school classrooms is not known.

Teaching the key vocabulary of a passage in preparation for students' reading of that passage seems to be a logical practice. However, the research support for this practice is mixed (6, 26, 42). Less than clear-cut support for this practice with high school students also comes from the fact that few studies have included members of this age group as subjects.

At present, two conclusions about the impact of teaching vocabulary on high school students' subsequent reading comprehension appear warranted. First, the effect of teaching vocabulary depends on the value of knowing the words. Some words are relatively unimportant and can be skimmed over with little loss of comprehension. For instance, a narrative passage might mention that a minor character wore a taupe shirt. If this characteristic had no bearing on the story, then readers could safely ignore it. On the other hand, if the story

were a mystery and the color of the character's shirt were an important clue, then readers might need to know the meaning of taupe. Along with relative importance, contextual setting helps determine the value of teaching certain words before having students read a passage. Teaching taupe would not be necessary if the passage contained sufficient context to reveal its meaning (e.g., The suspect's shirt was taupe, a drab, brownish gray color). Finally, the expected level of understanding of a passage determines the value of knowing certain words' meanings. If rote recall questions are presented, then students can simply repeat words for which they have no meaning (e.g., "What color was the suspect's shirt?" "Taupe"). If higher level questions are asked, then students might need greater understanding of specific word meanings.

A second conclusion about teaching vocabulary is that its impact depends on how well students learn the words (43). Students require deep understandings of word meanings that accurately fit particular passages, and students require automatic access to those meanings. That is, students need to be able to apply correct word meanings in given contexts. For instance, readers need to know the technical, mathematical meanings of cube and root in order to make sense of the directive, "Obtain the cube root of 27." Students also need to be able to apply the meanings effortlessly. Readers who interrupt their processing in order to assign meaning to unfamiliar words have difficulty concentrating on the overall meaning of a passage.

Thus, teaching the vocabulary of a passage before reading will probably affect comprehension of that passage if the words are important, if they are not defined by their context, and if knowing their meanings contributes directly to performance on later tasks. In addition,

students require automatic understandings of the appropriate meanings for the words in order to comprehend a passage well. The next section presents research-based recommendations for teaching words to students.

Methods of Teaching Vocabulary

Before presenting methods of teaching vocabulary, it is important to repeat that advocates of the knowledge position contend that readers with enriched backgrounds of information tend to do well on both vocabulary and comprehension tasks because those readers have the necessary concepts to draw from during verbal tasks. Readers who already know a lot about plants, for example, have an advantage when reading about them. Teaching students concepts deserves attention as well as teaching students names for the concepts. Developing concepts is a complex task and one that has received much research attention (25, 41). We omit discussion of this area in order to concentrate on vocabulary development, which emphasizes attaching names to concepts.

Numerous suggestions are available for vocabulary development (14, 21, 23). In this section, we present four approaches for developing high school students' vocabularies that seem well supported by research. The approaches are based on semantic categories, passage contexts, imagery, and morphemics.

Semantic categories. A common way mature readers remember vocabulary terms is by relating them to other words; that is, readers form semantic networks, or categories (10, 16). Mature readers categorize words along many dimensions as they strive to create integrated sets of knowledge. For instance, the word boat might be associated with its functions (e.g., traveling, skiing, fishing), its

types (e.g., sailboat, hydrofoil, naval destroyer), its components (e.g., hull, propellor, beam), its coordinate concepts (e.g., car, train, airplane), and its superordinate concepts (e.g., vessel, craft). Studying information with the help of graphic organizers and analogies are two practices that promote the creation of semantic categories and that seem to be effective under certain circumstances.

- Graphic organizers. A research-based teaching practice that is grounded in the creation of semantic categories is graphic organizing. Graphic organizers portray relationships among terms in the form of hierarchical tree diagrams. They differ from traditional outlines because terms are not arranged according to their order of presentation and the forms of the diagrams are not governed by tradition. They differ from webs and matrices because these latter two structures are not organized hierarchically (6). Figure 1 is an example of a graphic organizer for edible plant terms.

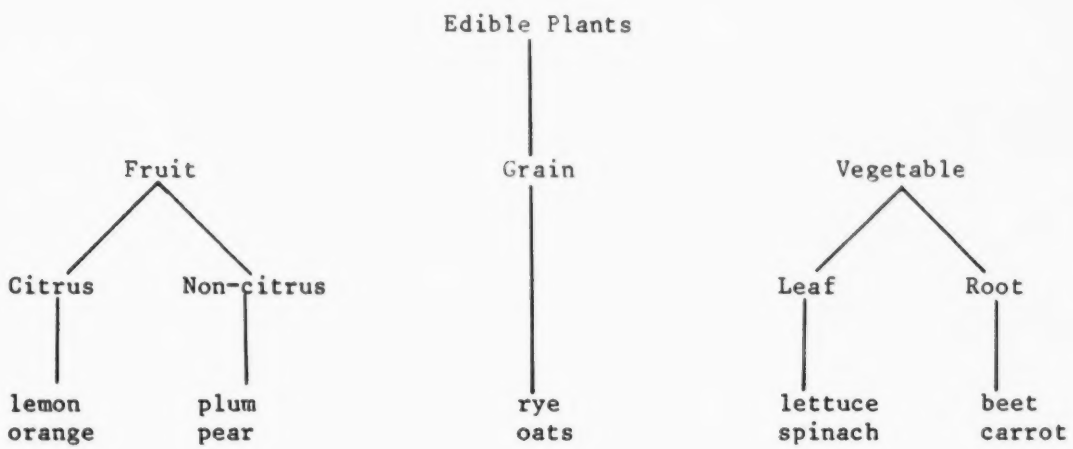

Figure 1

Moore and Readence reviewed the research on graphic organizers and presented several conclusions (28). First, graphic organizers affect vocabulary test scores to a moderate degree. Second, learners' maturity might influence the effectiveness of graphic organizers. University students seem to benefit substantially from graphic organizers, whereas elementary and secondary students obtained smaller effects. Third, students who produce graphic organizers following the presentation of content do better than those who interact with graphic organizers only before the content is presented. A possible explanation for the relatively strong effect following the presentation of content is that students in this condition were actively involved with the construction of the graphic organizers. For instance, the involvement consisted of students (a) freely grouping words written on index cards and (b) filling words into prepared tree diagrams that included superordinate terms. This involvement seemed to produce active, organized thinking about word meanings.

A fourth conclusion about graphic organizers was that teachers who led students through graphic organizing perceived themselves to be better prepared and more confident than usual. Teachers who used graphic organizers liked having a map of the course content they were presenting. Finally, little was known about how graphic organizing fit the daily routines of secondary schooling. Inserting graphic organizers into the instructional repertoire of teachers calls for change, and teachers' reactions to this particular change were not documented.

In brief, graphic organizing is a teaching practice based on semantic categories that holds promise as a way to increase students' vocabularies. Graphic organizers that are produced after content is presented seem to especially benefit mature students.

- Analogies. Analogies are a type of semantic category that appear to substantially affect high school readers' learning from text (5, 18). Analogies differ from graphic organizers because analogies explicitly compare similar concepts, whereas graphic organizers diagram a network of relationships. For instance, in analogies, an airplane propellor's forward movement caused by its biting into the air might be compared to a screw's forward movement caused by its biting into wood; the game of cricket might be compared to baseball; and the interdependence of cells in the human body might be compared to the interdependence of people in a society. For a good presentation of various types of analogies and a summary of their prevalence in science textbooks at various grade levels, see Curtis and Reigeluth (13).

  To present vocabulary through analogies, teachers first think of something students know that is similar to the to-be-learned word. The old term that is being used to teach the new one must be quite familiar in order for the analogy to be effective (4). Telling students that the rules of cricket are quite similar to the rules of rounders is not helpful if the students don't know rounders either. Once a familiar term is matched with an

unfamiliar one, then explicitly point out how the two concepts are alike and not alike.

Passage contexts. Along with semantic categories, mature readers use contextual knowledge to understand and remember the meanings of words (10, 16). Passage contexts consist of the words that surround a word. Mature readers always use context to some degree because it allows fluency by enabling them to predict and verify upcoming words. In addition, context determines the meanings of words. The appropriate meaning of a multiple-meaning word like spring can only be inferred by noting its context. This value of context is difficult to overestimate because all meaning depends on the situations in which events occur (27). Teaching practices that develop readers' attention to passage contexts seem to be effective for vocabulary development when certain conditions are met.

Fluency seems to be one condition that readers need in order to use context as an aid for vocabulary development. Readers need to make automatic, rather than conscious, use of basic reading processes in order to apply context to unfamiliar words (22, 45). Students who read word-by-word because they have limited strategies or because their texts are too difficult generally are unable to attend to the meanings conveyed by the sentences, paragraphs, and longer units of discourse. Non-fluent readers have little mental capacity left over for using context to learn the meanings of unfamiliar words.

Time spent reading is another factor that affects student's ability to learn words through context. Nagy, Herman, and Anderson reported a study that provided some empirical support for providing readers time to

read as an aid to vocabulary (30). Their study is noteworthy because it examined secondary school students and it employed normal textbook passages. An important feature of the study was that the subjects knew they would be tested on the reading material, so they probably read the passages quite carefully. Nagy, Herman, and Anderson determined that eighth-grade students of average and above average reading ability acquired some meanings of some unfamiliar words during one reading of selected passages. This study provided limited support for the assertions made by many educators that careful reading pays off in improved vocabulary. We emphasize this study's findings--that time spent reading slightly improved good readers' vocabularies--because we know that reading time is a scarce commodity inside and outside secondary schools.

Having listed some general conditions needed for readers' vocabularies to benefit from the use of context, it is important to list some qualifications about this device. First, the value of context depends on the experience of readers and the information that is provided (38). For instance, Bouilabaisse is a seafood goulash is a sentence that suggests the meaning of bouilabaisse only for readers who already know the meaning of goulash. Readers benefit the most from contextual clues that provide clear, relevant meanings. In addition, readers who have eaten bouilabaisse but didn't know what it was called will benefit from this sentence more than those who have not experienced the dish. Readers who have the concept for an unfamiliar term but not its label benefit the most from context.

Second, vocabulary development through attention to context is a gradual matter. Many years ago Deighton pointed out the need for

frequent contacts with an unfamiliar word in order to learn all its meanings (15). Terms such as cube and root require numerous contexts for all their meanings to be revealed. In addition, one contact with an unfamiliar word might produce only partial knowledge of one meaning of the word. Nagy, Herman, and Anderson reported that learning word meanings from context took place, but their measures of learning included three levels that ranged from minimal to complete (30). The point here is that readers might know a word, but only partially, after encountering it in one context.

A third qualification about the use of context is that the relative values of particular contextual forms are not clear. Researchers such as Ames, Quealy and Sternberg, Powell, and Kaye have suggested specific types of context cues such as direct explanation, comparison and contrast, enablement, and class (1, 37, 40). Others suggest that pictorial and graphic aids (e.g., charts, graphs, footnotes) be considered context cues. However, the relative informational value of these types of context cues for secondary students has received only a little research attention. For example, Carroll and Drum reported that high school students benefited the most from context that explicitly provided the meanings of words (8). Contexts such as "Seamen suffered regularly from scurvy, a terrible disease caused by lack of vitamin C that sometimes carried off whole crews" was found to improve vocabularies more than contexts such as "Seaman suffered regularly from scurvy that sometimes carried off whole crews" (8, p. 158). At present, the following rule given to middle-school students for using context in one study seems most appropriate: "When there's a hard word in the sentence, look for other words that tell you more about that word" (7, p. 198).

In brief, high school readers benefit from encountering unfamiliar words in context. Time spent fluently reading a passage in preparation for a task seems to produce vocabulary growth. The value of context is limited when readers are unable to relate to the available cues. In addition, learning words through context is a gradual process that seems to require exposure to many cues about the meanings of particular words.

Imagery. Visualizing the concepts represented by words has been demonstrated to be a useful device for understanding and remembering word meanings (32, 33). Imagery takes many forms, and visual imagery is only one type. However, visual imagery has received the most attention. Some vocabulary terms that represent concrete objects (e.g., Joseph Stalin, Taj Mahal, barbed wire) are easily pictured mentally while terms that represent abstract concepts require more complex processing. For instance, visualizing the vapor coming off dry ice might be used to represent the science term sublimation; thinking of the moisture that forms on cold iced tea glasses during the summer might be used to represent condensation; and thinking of a freeway set noticeably close to a farm house might stand for eminent domain.

A specialized use of mental imagery for vocabulary development that has received a great deal of research attention is the keyword method (35, 36). The keyword method is a two-step procedure. First, analyze an unfamiliar word (e.g., poteen, which is Irish whiskey) and identify part of it that sounds like a familiar word (e.g., pot). Then visualize a connection between the unfamiliar word and the familiar word-part (e.g., imagine a pot containing a bottle of Irish whiskey). When introducing students to this method, pictures are helpful so that clear examples of

the connecting images can be displayed. The use of pictures can be gradually faded out so that the students generate their own images.

Studies have demonstrated that the keyword method establishes a strong connection between unfamiliar words and their meanings. However, its applicability to subject-matter terms encountered daily in high school remains to be seen. This method is rather cumbersome and artificial. At least the keyword method research has been useful for focusing educators' attention on devices for vocabulary growth beyond semantic categories and passage contexts to mnemonics such as visual imagery.

Morphemics. A frequently recommended vocabulary development practice is to have students attend to prefixes, bases, suffixes, and compounds. Readers who discern morphemes in unfamiliar words are thought to have an advantage in understanding and remembering word meanings. The longest word in the English language, pneumonoultramicroscopicsilicavolcanoconiosis, which names a lung disease caused by the inhalation of very fine silicate dust, is a striking example of a long word that can be learned by applying morphemic analysis. Indeed, morphemic analysis frequently seems to act as a mnemonic device for new words. Although some students might have difficulty independently applying morphemic analysis to unfamiliar words, these same students might understand and retain the meaning of individual words when their morphemic structure is highlighted (31). Highlighting the morphemes in the 45-letter word above might help students learn that word.

Research into the effects of teaching students morphemic analysis is minimal (17, 22). In fact, the most compelling case for teaching

students morphemic analysis is presented by those who study English word formation rather than education (3, 12, 44). Linguistic analyses have established the fact that numerous words in English are based on common morphemes. Furthermore, the analyses point out that morphemes tend to be spelled the same, even though their pronunciation might change substantially. This characteristic is illustrated by word pairs such as please/pleasant, sign/signal, and metal/metallic. As can be seen, one morpheme underlies each word pair, but the pronunciation of each morpheme changes even though its spelling remains constant. Given this role of morphology in English, teaching students to discern morphemes seems reasonable. The following recommendations for teaching morphemic analysis to high school students also seem reasonable, although they are prime candidates for further investigation:

1. Emphasize base words in semantic word families (11). For instance, in English literature the terms drama, dramatic, dramatist, dramatize, and dramatization might be presented when that concept first occurs. In science the terms humid, humidity, humidify, and dehumidify might be presented.
2. Only teach morphemes that are productive (39). For instance, knowing the meaning of ceive is not strongly related to knowing words that contain that root, such as receive and conceive. Similarly, the prefixes ab and ad seldom reveal the meanings of words.

Summary

High school teachers are unable to teach students all the words they will need throughout their lives. Adults require word analysis techniques that enable them to figure out words on their own. The key here is the use of strategies. Readers need self-initiated, flexible control of strategies for determining the meanings of unfamiliar words. Teaching students word meanings certainly is important, but teaching students how to learn words on their own also deserves attention.

Teaching students independent strategies is an area that is just beginning to appear in vocabulary research (6). Calfee and Drum report that some training studies have been successful in teaching limited sets of strategies (e.g., applying knowledge of eight prefixes to words), but research-based suggestions are few. A general suggestion is based on models of direct instruction. That is, teachers should first demonstrate and discuss the vocabulary strategy they want their students to perform. Teachers who think aloud as they perform the strategy present a model for their students to follow. Such teacher modeling is like a slow-motion film of the actual process. After demonstrating and discussing a vocabulary strategy, students perform it under gradually decreasing teacher direction and feedback.

Teachers might begin their instruction by pointing out that they have been leading students through ways to learn words, but now is the time for the students to lead themselves. For instance, if teachers have been leading students through graphic organizing, then the question might be asked, "How do we go about graphically organizing a passage?" Responsibility for selecting and diagramming the words is gradually shifted to the students until they can independently produce their own

graphic organizers. Vocabulary strategies presented in this chapter that might be shifted to students' responsibility consist of the following:

1. Determining the words in a passage that need to be known in order to understand the passage,
2. Forming semantic categories such as graphic organizers and analogies,
3. Locating passages that allow fluent reading in order to learn new vocabulary,
4. Allocating time to read passages that contain new vocabulary,
5. Focusing on contextual cues that define unfamiliar words,
6. Visualizing concepts represented by words, and
7. Applying morphemic analysis when possible to unfamiliar words.

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READABILITY

What is the "average" reading level of a 12th-grade student?

In secondary schools, teachers are not, for the most part, present when students read texts. Goodlad reports that the teachers and students his team observed devoted less than 5% of their class time to reading (11). Students use their textbooks, then, outside the classroom, reading and studying texts largely without teacher assistance. Matching students to texts to ensure that the books are useful to and used by students is a critical activity for teachers. In perfecting this match of students to text, three things need to be considered: the range of the reading ability among students, the readability level of texts, and structural features of text that facilitate the students' processing of the information in the book.

Reading Range of Ability

Teachers have long observed that many students in the same class appear to read below grade level or above it. Sometimes, teachers who have been frustrated by assigning text readings that prove too difficult for students wonder what these students were taught in their elementary reading classes. Actually, American elementary school teachers are successfully teaching students to decode and comprehend (15). However, it is unreasonable to expect that the reading skills acquired in elementary school will be sufficient to enable students to perform secondary school work. Secondary school students need to acquire strategies for dealing with increased technical vocabulary, concepts that are not a part of their background knowledge, and complex linguistic structures.

Within any group of students, a range of reading achievement naturally exists, reflecting individual differences. Singer and Donlan point out that the expected reading level of a class of students with average IQs is a range that is equal to two-thirds of the average chronological age ($\overline{CA}$) of the group (16). If the average age of a group of high school seniors is 18, then the expected reading age range is 12 years or the average chronological age plus or minus half the range.

$$\text{Expected reading age range} = \overline{CA} \pm \frac{(2/3\ \overline{CA})}{2}$$

$$= 18 \pm \frac{2/3(18)}{2}$$

$$= 18 \pm \frac{12}{2}$$

$$= 18 \pm 6$$

$$= 12 \text{ years to } 24 \text{ years}$$

The reading age range is very wide, and it increases each year. Thus, even if teachers select a text with a readability score appropriate for the grade level, some students in the class will find the text too difficult, while others will find it too easy.

What is readability? How can I determine it?

Readability refers to the ease of understanding of a text chiefly because of features of writing style. From our own experience, we know that very long sentences or sentences with a high proportion of difficult words are more difficult to understand than sentences with fewer words or easy words. Also, we know that sentences with subordinate clauses are

more difficult to understand (because of the more complex relationships among the clauses) than sentences with clauses joined by and, because, or for. Generally speaking, readability formulas have been based on two variables: sentence length and complexity of words. These variables can be easily recognized by most people and can be quantified. When these variables are fed into a formula, a grade level can be assigned to a given book or text.

However, readability formulas are at best only a rough indicator of how students will respond to a text. Readability formulas fail to consider many of the factors that make up a student's learning potential, including prior knowledge, motivation, and reading skill level. In addition, readability formulas ignore the influence of other text factors, such as text structure and the degree of coherence within and between sentences (5).

Readability Formulas

The earliest readability formulas (many of which are still widely used) were based on Thorndike's frequency count of word use. By analyzing the number of times that a particular word appeared in print, Thorndike was able to determine the relative familiarity of words. Based on this work, other people developed readability formulas (12).

Although different combinations and equations were developed, they all took into account the number of words in a sentence, the difficulty of the words, and phrase and sentence structure. Some developers tried to reduce the burden of the process--since a formula is unlikely to be used if it cannot be used easily--while retaining the high correlation with reading scores. Optic scanning equipment and computers have reduced

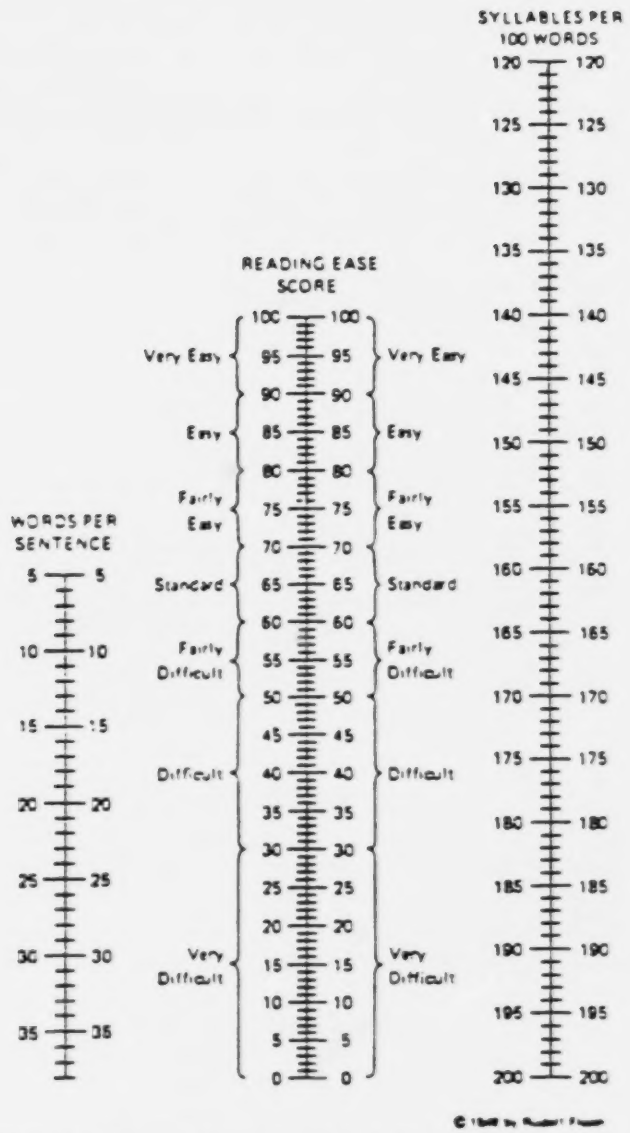
the tedium and potential for error that made formulas developed earlier in this century difficult to use.

Two formulas are widely used, are easily applied, and will be presented here in some detail: The Flesch Reading Ease Formula and the Fry Readability Graph. The Flesch Reading Ease Formula focuses on two aspects of text: the number of syllables per hundred words and the average number of words per sentence in a 100-word sample (9). To use the formula, select a passage of about 100 words. Count the number of words and divide by the number of sentences. This will render an average sentence length.

$$\frac{\text{words}}{\text{sentences}} = \text{average sentence length}$$

Next, count the numbers of syllables in the passage. When counting syllables, read the words aloud, marking a slash (/) for each syllable you hear. If you read silently, you run the risk of misidentifying syllables. For example, wanted is a two-syllable word, but stopped is a one-syllable word.

When you have determined the average words per sentence and the total number of syllables, turn to the chart on page 109. Find the number of words per sentence on the scale on the left; find the total number of syllables on the scale on the left. Using a ruler or pencil, connect the two numerals on the left and right scales. The reading ease score is the point where the ruler crosses the middle scale.



[1] From *The Art of Readable Writing*, revised by Rudolph Flesch. Copyright 1949, © 1974 by Rudolph Flesch. Reprinted by permission of Harper & Row, Publishers, Inc.

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[1] (Need to seek your permission)

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Use this passage for practice:

Teachers who decide to use the process approach to writing instruction in their classroom will find several things happening. Children will spend more time talking with one another and with the teacher. The teacher's ability to diagnose the needs of individual children and to guide their development will be strengthened. Children will also spend more time writing. They will be more highly motivated to write, not just in the language arts, but in all of the subject areas and during the hours that they spend away from the classroom. Finally, the level of trust between the children and the teacher will increase, because the teacher's role as editor will take precedence over the teacher's role as evaluator.

From: Research Within Reach: Oral and Written Communication, by D. Holdzkom, L. J. Reed, D. L. Rubin, and E. J. Porter. CEMREL, Inc., 1982.

Number of words 117
Average words per sentence 19.5 (sentence length)
Number of sentences 6
Number of syllables 182 (word length)
Intersection point 35

The score of 35 indicates that this sample is difficult. To determine the grade level of the passage and the kind of publication that contains passages of this difficulty, consult the table on page 111.

If the Flesch Scale is not available, the following formula can be used (12):

1. Systematically select some 100-word samples from the material to be rated;
2. Determine the number of syllables per 100 words (wl);
3. Determine the average number of words per sentence (sl);
4. Apply in the following reading ease equation:

$$R.E. = 206.835 - .846wl - 1.015sl$$

Table 1

Reading Ease Score	*Style*	*Grade*	*Typical Magazine*
90 to 100	Very Easy	5	Comic books
80 to 89	Easy	6	Pulp fiction, such as *Western Magazine*
70 to 79	Fairly Easy	7	Slick fiction, such as *True Stories; California Driver's Handbook*
60 to 69	Standard	8–9	*Reader's Digest, Time* magazine
50 to 59	Fairly Difficult	10–12 (high school)	Some high school texts; journals, such as *Language Arts;* magazines, such as *Harper's* and *Atlantic*
30 to 49	Difficult	13–16 (college)	Academic—college texts
0 to 29	Very Difficult	17+ (graduate school)	Scientific, such as *American Medical Association Journal;* graduate school texts, such as *Theoretical Models and Processes of Reading*

Source: Adaptation of pp. 177 and 178 from *The Art of Readable Writing*, rev. ed. by Rudolph Flesch. Copyright 1949, © 1974 by Rudolph Flesch. Reprinted by permission of Harper & Row, Publishers, Inc.

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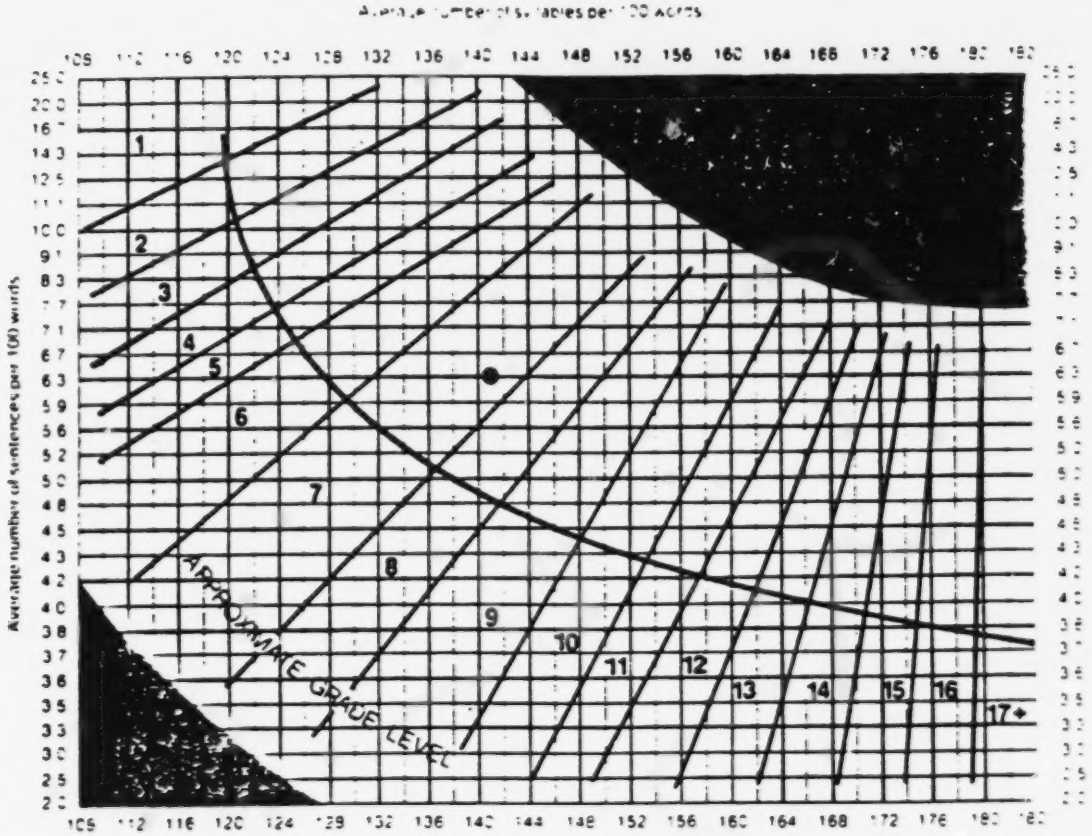
A second widely used method for estimating readability was developed by Edward Fry (10). The Fry Readability Graph with instructions for use is shown below. Like Flesch, Fry bases his estimates of difficulty on the interaction of sentence length and number of syllables.

GRAPH FOR ESTIMATING READABILITY — EXTENDED



DIRECTIONS: Randomly select three one hundred word passages from a book or an article. Plot average number of syllables and average number of sentences per 100 words on graph to determine the grade level of the material. Choose more passages per book if great variability is observed and conclude that the book has uneven readability. Few books will fall in grade areas, and very easy or very difficult grade level scores are invalid.

Count proper nouns, numerals and initializations as words. Count a syllable for each symbol. For example, 1945 is 1 word and 4 syllables and IRA is 1 word and 3 syllables.

EXAMPLE	SYLLABLES	SENTENCES
1st Hundred Words	124	6.6
2nd Hundred Words	141	5.5
3rd Hundred Words	158	6.8
AVERAGE	141	6.3

READABILITY 7th GRADE (see dot plotted on graph)

For further information and validity data, see Edward Fry, "Fry's Readability Graph: Clarifications, Validity, and Extension to Level 17." *Journal of Reading* (December 1977).

The Fry graph is especially helpful, since it provides a grade level estimate, whereas the Flesch Reading Ease Formula provides a relative difficulty score.

Typically, readability formulas of the computational type have two uses. They can be used to determine the readability of a given text and, thus, predict the ease with which a reader can handle the text. Klare points out that prediction research has primarily a psychometric orientation and that since the appearance of the first readability formula, correlations in the low .90s are possible (13). Textbook publishers routinely publicize the readability levels of their books, expressed as grade levels. However, this practice raises a problem in interpretation, because grade level is not an absolute term. Chall and her colleagues have demonstrated that the reading level of texts has consistently declined over the years and that there has been a corresponding decline in Scholastic Aptitude Test (SAT) scores (2). Moreover, when the different readability formulas are applied to the criterion passages, they may disagree among themselves; different formulas do not always assign the same rating to the criterion.

Efforts have been made to help text authors write at specific levels of difficulty, especially when they are writing textbooks for specific grade levels. When readability formulas are used for production purposes--to guide writers--other problems surface. For example, reducing the number of words per sentence by separating clauses with periods rather than by conjunctions results in a lower score. However, conjunctions often serve to clarify relationships between clauses, and their deletion may result in confusion. For example:

> Similarly, the story of Pandora appeals to us because it gives an ingenious explanation for the presence of evils and diseases on earth, and because the figure of Pandora herself, despite the troubles she brought, is an attractive one.*
>
> Similarly, the story of Pandora appeals to us. It gives an ingenious explanation for the presence of evils and diseases on earth. Also, the figure of Pandora is an attractive one, even though she brought troubles to earth.

From Myths and their Meaning, Max J. Herzberg, Allyn and Bacon, Boston: MA, 1984, p. 20.

The changes do not increase ease of understanding even though on a formula basis, the readability level has been decreased. Reducing sentence length is often used to dilute literary classics for younger readers. While rewriting for improved clarity is sometimes desirable, editing merely to reduce sentence length often creates as many problems as it solves.

Alternative Procedures

Bearing in mind Singer and Donlan's formula for estimating the expected reading age range of any group, it is clear that simple reference to a grade level number is not sufficient for selecting the most appropriate texts (16). Moreover, only a limited number of teachers participate in textbook selection. The course text may be adopted by a school district committee, or it may be chosen by department chairs. In any case, the text is chosen without specific knowledge of the ability of the students who will use it. Sometimes several texts, at various reading levels, are available; sometimes a single text must be used by all students in a given class. In either case, the teacher will need to determine the ability of students to use the text or texts available. There are procedures, however, that teachers can apply in classrooms to estimate the difficulty of text for individual students.

The use of cloze procedures has been studied as an alternative to traditional readability formulas. In a cloze procedure, words are deleted at a regular rate from a passage.

> Bobby loves to play _____ but has never been ____ to hit the ball. ___ sense of frustration is _____ when the other boys ____ him about his record __ strikeouts. His friend Willy _____ him some techniques and _____ him to work hard ___ keep practicing.

The student fills in the blanks with words that fit the context. Examining the student's responses enables the teacher to identify those students for whom the text is too difficult, too easy, or about right. This procedure has several benefits. First, it allows the teacher to select supplementary materials at the appropriate level of difficulty for students. Second, it alerts teachers to differences among students. Finally, it allows the teacher to decide how much reliance can be placed on the text or other materials as conveyors of information.

Specifically, this procedure entails the following steps:

1. Select textbooks at several grade levels from your content area. Take a passage of about 125 words from each book. Leaving the first and last sentences of each passage intact, delete every fifth word.

2. Ask students to read the passages in order of difficulty, beginning with the easiest text. Ask them to insert the correct word in each blank. Count the number of exactly correct words that each student inserts.

3. Using this formula, determine the percentage correct score:

$$\text{percent correct} = \frac{\text{words correct}}{\text{total words deleted from the passage}} \times 100$$

The cloze procedure results will indicate the range of reading ability in the class.

Generally, a score between 44% to about 60% correct insertions indicates that the student can read the text at the instructional level; the student can use the text with the help of the teacher. A score below 44% indicates that the text is at the frustration level; it is too difficult. A score above 60% indicates that the text is at the independent level; it can be used without assistance.

Using this information, the teacher can select and assign supplementary reading materials at the appropriate level of difficulty for each student. Many school libraries have a copy of The Junior High School Catalog (8) or The Standard Catalog for High School Libraries (7), reference books that list and annotate textbooks, supplementary instructional materials, and other print resources. The annotations include readability levels that can help teachers make appropriate selections for students when the assigned text is too easy or too difficult.

Two words of caution are important here. First, remember Goodlad's observation that less than 5% of class time was devoted to reading in classes he studied (11). If reading--either orally or silently--is expected to be an independent task for students, then care must be taken to select books that students can read independently. Second, cloze techniques work best when the passage is near the student's reading level. Often, very good readers choose synonyms for the correct word when filling in the blanks. These synonyms must be counted as incorrect (because they are inexact) responses. Therefore, when using cloze techniques, a careful review of scores is needed to insure that the results are not artificially low.

Another tool for teachers who are trying to arrive at a good match between text and students is the Degrees of Reading Power (DRP) test developed by the New York State Education Department in cooperation with Dr. Bert Koslin of Touchstone Applied Science Associates, Inc. (TASA). Presently the College Board has the rights to the DRP test (3). A Readability Report published each year is available from the College Board in cooperation with the New York State Education Department and TASA.

Essentially, the test provides a continuous scale of reading achievement scores for students from grade 3 to 12 and beyond. The student achievement tests use a cloze format. All information needed to answer the test questions is included in the reading passage, so the effect of any individual's memory or personal experience is minimized. In addition to measuring student reading skill, the same scale can be applied to reading passages or textbooks. Using the Bormuth Mean Cloze Readability Formula, textbooks are analyzed and assigned a readability score that is expressed in the same terms as the student achievement score. Thus, a single scale is the basis for assessing both the text's readability and the students' reading power.

One additional feature of the DRP is especially important to teachers. From the student's raw score, three other scores can be inferred: the independent level of reading, the instructional level of reading, and the frustration level of reading. These levels indicate the level of passage difficulty that a student can handle alone, or with instructional assistance, or the level beyond which the student is unlikely to comprehend the text even with the assistance of the teacher.

By comparing these three scores for the students in a given class, the teacher can determine the range of reading ability of the class. The information can guide text and supplementary materials selection. Teachers can decide which materials can reasonably be assigned to specific individuals for use in class or outside the class.

The recognition that a single student reads on a variety of levels suggests that individuals read some texts with greater facility than others. Klare and Schumacher have pointed out that prior knowledge, incentives for gaining knowledge, and reading interest all influence a student's ability to comprehend different texts (14). The student who reads a history text with ease may find it very difficult to read a physics text, even though both books are written at the same level of difficulty.

Although it is important to be able to determine readability, teachers may inadvertently do students a disservice if they provide books only at the right level of difficulty. Crismore points out that the decline of SAT scores is associated with a decline in text difficulty, and that a recent increase in the difficulty of primary school texts is associated with rising reading achievement scores (4). Perhaps giving students texts that are too easy leads to lower scores on reading ability tests and may be detrimental to the development of high level reading and interpretation skills. In the absence of any research into this possibility, the conjecture that giving students difficult text to read will raise their achievement scores is interesting, at best.

What are the features of a text that make it readable?

Recent research on the nature of the interaction between the reader and the text suggests that many extratextual features influence the reader's ability to learn from text. The reader's prior knowledge influences the degree to which he or she will be able to make text meaningful. This prior knowledge, however, is more than content knowledge. It also includes the reader's understanding of how texts are structured and how various parts of the text work together. Consequently, it is important to consider one more factor when examining texts and other reading materials: the structures in the text itself that facilitate or interfere with the ability of students to comprehend (6).

Some research has been conducted that illuminates the congruence between the rules of text known to young readers and the application of those rules in stories, or narratives. However, Estes points out that this line of research has been less fruitful when it examines the rules that govern content area textbooks and the reader's awareness of these rules (6). Partly this is because the logic underlying school textbooks is unlike the logic of the reader.

The external, or surface, features of the text structure are readily apparent to the reader. Chapter titles, paragraph divisions, subtitles, and illustrations with captions are all intended to help the reader understand the text. Unfortunately, when Anderson, Armbruster, and Kantor examined a variety of textbooks for different age groups and in different subject matters, they found that the texts were organized around misleading titles, that the main ideas were often obscure, that

crucial information was omitted, that the texts often presented contradictory information, and that texts were ambiguous (1).

The structures inherent in text are, of course, only half of the issue, if one believes that text and reader interact. Estes reports research that examines the other half of the partnership (6). In an effort to understand how readers perceive text, Estes and his colleagues designed a procedure using these steps:

1. Readers were asked to divide texts into "idea units," indicating where in the text an idea began and where it ended.

2. Readers were asked to rate the importance of these ideas with respect to their perception of the author's main points.

3. Readers were asked to rate the familiarity of these ideas.

4. Readers were asked to read text passages and to record everything they could recall from the reading.

Using these procedures, Estes and his colleagues have begun to develop a picture of several texts as they are perceived by readers. One of the interesting outcomes of this work is that there is only a moderate relationship between the importance of an idea and the likelihood of its being remembered. Upon examination, Estes noticed that these important, but poorly recalled ideas, are often expressed in very dense chunks of prose:

> A species is a population of individuals that are more or less alike and that interbreed and produce fertile offspring under natural conditions.

Similarly, important principles were often not stated explicitly or were not given sufficient emphasis. The use of inconsistent or unrepresentative examples of principles also leads to confusion or mis-learning for the reader. Often, the details of the example are remembered more clearly than the principle that the example illustrates.

Several researchers have attempted to rewrite textbooks to see if comprehension could be increased. Wetmore developed seven guidelines for making text more clear:

1. Write unimportant ideas as briefly as possible, avoiding the use of vivid examples.
2. Tighten the relationships between examples and important ideas.
3. Turn negative statements of important principles into positive ones.
4. Enumerate important points.
5. Attach semantic labels to important concepts.
6. Underline technical terms.
7. Indicate straw men, or arguments that are set up to be disproven (17).

Wetmore found that rewriting text passages following these guidelines led to an increase in the total number of ideas recalled, in the number of important ideas recalled, and in the correlation between the importance of an idea and the likelihood of its recall.

While it is unlikely that teachers will restructure text or rewrite it, the guidelines do suggest two ways teachers can help students learn from text. First, these guidelines can be used as the basis for the teacher's lecture, whether the lecture illustrates the principles contained in the text or uses the text as the elaboration of the lecture. Second, the teacher can directly assist students in using their textbooks by drawing attention to technical terms, straw men arguments, and important concepts or key points. Specific suggestions for helping students learn from text can be found in Chapters 4, 5, and 9 of this volume.

Summary

For a long time, readability formulas have been recommended as a way for teachers to gauge for students' potential difficulty with textbooks prior to reading. Readability formulas typically indicate text difficulty by providing a quantitative measure of word and sentence length; that is, longer words and sentences are assumed to be more difficult than shorter words and sentences. More recently, however, it has been argued that readability formulas are at best only a rough indicator of how students will respond to a text. Alternative procedures that teachers can use to estimate ranges in reading achievement and text difficulty include the cloze procedure and the Degrees of Reading Power (DRP) test. Both of these procedures yield estimates of readability in terms of the independent, instructional, and frustrational levels of reading. Readability formulas, however, fail to consider several additional factors that influence how well students will comprehend their assigned texts. These additional factors include the reader's background knowledge and the structure of the text itself. Although teachers are limited in what they can do to alter either of these two factors, they can make students aware of the importance of using prior knowledge and text structure to comprehend what they read.

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OBJECTIVES/MATERIALS

What are the best procedures for textbook selection in the content areas?

Although using only one class textbook during instruction is a widespread practice, it goes against most of the published advice about the role of textbooks. Most writers suggest using subject-matter textbooks only as supplements to instruction. To illustrate, Penick and Yager reported finding no exemplary school science programs where one text served as the total curriculum (16). Instead, they found that teachers and developers of exemplary programs supplemented their curricula with textbooks. Magazine articles, library tradebooks, library reference materials, films, outside speakers, and a variety of textbooks were used in the exemplary programs they found. Students did a great deal of reading, but it was in nontraditional ways. Texts were used only as one source of information.

The Prevalence of Textbooks

Despite recommendations for limiting the use of textbooks in secondary schooling, there is little doubt that textbooks prevail. Descriptive research into U. S. secondary school social studies and science instruction indicates the widespread use of textbooks (6, 7, 10, 20). Historical research indicates that this prevalence has persisted for at least the past 100 years (3). In most schools, each student receives a copy of the text that is adopted for each class. The texts then constitute the core of the curriculum; teachers rely on them as primary sources of the information to be imparted to students. Of course, as noted in the first chapter of this volume, the actual reliance

students place on texts is suspect. Students seem to rely to varying degrees on teachers' restatements or explanations of the textual material. Nevertheless, textbooks are a central feature of daily instruction.

The centrality of textbooks to schooling comes in part from two sources of authority. One source of text authority is the nature of the written language they contain (15). Written materials dissociate the author from the reader; the sender of the message is separated from the receiver. This separation provides an impression of objectivity and validity that frequently is missing in face-to-face conversation. Students are unable to argue with or question an author who is absent. Along with the dissociation of writer and speaker, the writing style of textbooks grants them much authority. Textbook authors generally assume an all-knowing stance. Textbooks cover substantial amounts of information, so detailed accounts that informally connect phenomena to readers' lives are rare. Finally, textbook authors attempt to make their meanings as explicit as possible. This explicitness renders the writing into flat, declarative statements that appear unarguable. These statements also can be difficult to understand. Readers who struggle for basic comprehension of textbook contents have little capacity left for thinking critically about those contents. Thus, the magisterial tone of textbooks leads readers to grant them much prestige.

Another source of text authority comes from the ideology of traditional schooling (14). The dominant ideology of U. S. schools is cultural reproduction; that is, schools are expected to transmit a common body of knowledge to their students. Secondary school students are expected to know the Bill of Rights and be familiar with the periodic

table of elements. The contributions of Confucius, Marie Curie, Ernest Hemingway, and countless other historical figures are expected to be known by graduating seniors. Such expectations lead teachers to rely on textbooks because they are handy repositories of this approved information.

Teachers probably rely on textbooks for reasons other than the fact of the authority that textbooks assume. Teachers save preparation time by systematically presenting information from a textbook. Finances probably limit the materials that are available. Managing students is easier with only a few materials because routines are easier to control. Indeed, a practice as prevalent and persistent as the reliance on textbooks occurs only because many powerful forces contribute to it.

Selection Procedures

Given the prevalence of single textbooks in secondary schools, procedures for selecting only the best ones should be followed. Although data-based evidence is lacking to support textbook selection procedures, the two that seem most effective involve the use of checklists and field tests. These procedures are recommended in part because so few worthwhile alternatives are available. Readability formulas and their alternatives (as presented in the preceding chapter), uninformed opinions, and publishers' marketing claims are not acceptable criteria by themselves for selecting textbooks.

Farr and Tulley report that most textbook selection today is done by adoption committees (5). In some cases, review takes place at two levels, state and district. In studying the processes of selection, the researchers found need for improvement of the process itself, and they

suggested a focus on strengthening the validity and utility of the criteria used in the selection process. Their review of 70 criteria sheets used by school districts found only one common criterion--the copyright date of the textbook.

Farr and Tulley recommend the following for improving adoption practices (5, pp. 470-471):

1. Recognize that selecting a textbook is not the same as selecting a curriuclum.
2. Focus attention on those factors most likely to identify effective textbooks. Shorten and focus criteria lists; include criteria from research on effective learning.
3. Review specific examples of each of the criteria. Identify specific strengths and weaknesses of each textbook reviewed.
4. Try out and revise all evaluation procedures to be used in the adoption process prior to implementing the actual review.
5. Take time for committee members to learn about the review process, to develop valid and reliable procedures, and to actually review the textbooks in depth.
6. Conduct review and adoption processes at the local district or school level.

Checklists. As Farr and Tulley indicated, checklists can be valuable tools for evaluating textbooks and other instructional materials (5). Checklists focus attention on specific aspects of materials that might be overlooked. Checklists also can be derived from research into features of text that affect understanding. Research evidence identifying what produces readable writing is scant, although opinions

about this topic abound (12). Nevertheless, there is some research evidence that supports certain conventions of writing. For instance, clear textual headings, illustrations, and graphics produce reasonably consistent effects on reading comprehension under certain conditions (13, 22). Items that focus textbook selectors' attention to these features can be placed in a checklist. Finally, checklists go beyond the aspects of a passage that readability formulas assess. This characteristic allows checklists to provide perspectives on a text that are more complete than the perspectives provided by readability formulas (4).

Many checklists for evaluating secondary textbooks have been proposed (1, 2, 8, 9, 11, 17, 19, 21). Although many of the criteria included on these checklists are derived from research-based information about what is associated with readable texts, it is important to realize that none of the lists has been validated. What follows, then, are two checklists that illustrate the status of this tool for textbook selection (9, 19).

Irwin-Davis Readability Checklist

This checklist is designed to help you evaluate the readability of your classroom texts. It can best be used if you rate your text while you are thinking of a specific class. Be sure to compare the textbook to a fictional ideal rather than to another text. Your goal is to find out what aspects of the text are or are not less than ideal. Finally, consider supplementary workbooks as part of the textbook and rate them together. Have fun!

Rate the questions below using the following rating system:

5 - Excellent
4 - Good
3 - Adequate
2 - Poor
1 - Unacceptable
NA - Not acceptable

Further comments may be written in the space provided.

Textbook Title: _____

Publisher: _____

Copyright Date: _____

Understandability

A. _____ Are the assumptions about students' vocabulary knowledge appropriate?
B. _____ Are the assumptions about students' prior knowledge of this content area appropriate?
C. _____ Are the assumptions about students' general experiential background appropriate?
D. _____ Does the teacher's manual provide the teacher with ways to develop and review the students' conceptual and experiential backgrounds?
E. _____ Are the new concepts explicitly linked to the students' prior knowledge or to their experiential backgrounds?
F. _____ Does the text introduce abstract concepts by accompanying them with many concrete examples?
G. _____ Does the text introduce new concepts one at a time with a sufficient number of examples for each one?
H. _____ Are definitions understandable and at a lower level of abstraction than the concept being defined?
I. _____ Is the level of sentence complexity appropriate for the students?
J. _____ Are the main ideas of paragraphs, chapters, and subsections clearly stated?
K. _____ Does the text avoid irrelevant details?
L. _____ Does the text explicitly state important complex relationships (e.g., causality, conditionality, etc.) rather than always expecting the reader to infer them from the context?
M. _____ Does the teacher's manual provide lists of accessible resources containing alternative readings for the very poor or very advanced readers?
N. _____ Is the readability level appropriate (according to a readability formula)?

Learnability

Organization

A. _____ Is an introduction provided in each chapter?
B. _____ Is there a clear and simple organizational pattern relating the chapters to each other?
C. _____ Does each chapter have a clear, explicit, and simple organizational structure?
D. _____ Does the text include resources such as an index, glossary, and table of contents?

E. _____ Doe questions and activities draw attention to the organizational pattern of the materials (e.g., chronological, cause and effect, spatial, topical, etc.)?

F. _____ Do consumable materials interrelate well with the textbook?

Reinforcement

A. _____ Does the text provide opportunities for students to practice using new concepts?

B. _____ Are there summaries at appropriate intervals in the text?

C. _____ Does the text provide adequate iconic aids such as maps, graphs, illustrations, etc. to reinforce concepts?

D. _____ Are there adequate suggestions for usable supplementary activities?

E. _____ Do these activities provide for a broad range of ability levels?

F. _____ Are there literal recall questions provided for the students' self-review?

G. _____ Do some of the questions encourage the students to draw inferences?

H. _____ Are there discussion questions which encourage creative thinking?

I. _____ Are questions clearly worded?

Motivation

A. _____ Does the teacher's manual provide introductory activities that will capture students' interest?

B. _____ Are chapter titles and subheadings concrete, meaningful, or interesting?

C. _____ Is the writing style of the text appealing to the students?

D. _____ Are the activities motivating? Will they make the student want to pursue the topic further?

E. _____ Does the book clearly show how the knowledge being learned might be used by the learner in the future?

F. _____ Are the cover, format, print size, and pictures appealing to the students?

G. _____ Does the text provide positive and motivating models for both sexes, as well as for other racial, ethnic, and socioeconomic groups?

Readability Analysis

Weaknesses

1. On which items was the book rated the lowest?
2. Did these items tend to fall in certain categories?
3. Summarize the weaknesses of this text.
4. What can you do in class to compensate for the weaknesses of this text?

Assets

1. On which items was the book rated the highest?
2. Did these items fall in certain categories?
3. Summarize the assets of this text.
4. What can you do in class to take advantage of the assets of this text?

Singer Criteria for Selecting Friendly Texts

I. Organization	Is the criterion satisfied? Yes	No
1. Does the introduction explain the purpose of the entire text?	___	___
2. Does the introduction provide information on the sequence of the text's contents?	___	___
3. Does the introduction communicate how the reader should learn from the text?	___	___
4. Do the ideas presented in the text follow a unidirectional sequence? Does one idea lead to the next?	___	___
5. Does the type of paragraph structure organize information to facilitate memory? For example, are objects and their properties grouped together so as to emphasize relationships?	___	___
6. Are ideas hierarchically structured either verbally or graphically?	___	___
7. Does the author provide cues to the way information will be presented? For example, does the author state: "There are five points to consider."	___	___
Discourse Consistency		
8. Is the style of writing consistent? For example, do the paragraphs, sections, and chapters build to a conclusion? Or do they begin with a general statement and then present supporting ideas? Or does the text have a combination of these patterns? Any one of these patterns would fit this consistency criterion.	___	___

	Yes	No
Cohesiveness		
9. Is the text cohesive? That is, does the author tie ideas to gather from sentence to sentence, paragraph to paragraph, chapter to chapter?	___	___
II. Explication		
10. Some texts may be read at more than one level, e.g., descriptive vs. theoretical. Does the text orient students to a level that is appropriate for the students?	___	___
11. Does the text provide reasons for functions or events? For example, does the text, if it is a biology text, only list the differences between arteries and veins, or does it also explain why they are different?	___	___
12. Does the text define terms as they are introduced at a level that is familiar to the student?	___	___
13. Does the text provide necessary background knowledge? For example, does the text introduce new ideas by starting with a bridge to previous texts in the curricular sequence?	___	___
14. Does the author use examples, analogies, metaphors, similies, personifications, or allusions to clarify new ideas?	___	___
15. Are the author's examples, analogies, and figurative language familiar to the reader? That is, do they help clarify the author's ideas?	___	___
16. Is the theory or theories that underlie the text made explicit, e.g., Kaynesian theory in Samuelson's economic text; Skinner's theory in Bijou; and Baer's Child Development; behavioristic or gestalt theories in psychology texts?	___	___
III. Conceptual Density		
17. Are ideas introduced, defined or clarified, and examples given before additional ideas are presented?	___	___

	Yes	No
18. Is the vocabulary load burdensome? For example, does almost each page of text introduce new terms?	___	___
IV. Metadiscourse		
19. Does the author talk directly to the reader to explain how to learn from the text? For example, does the author state that some information in the text is more important than other information?	___	___
20. Does the author establish a purpose or goal for the text?	___	___
21. Does the text supply collateral information for putting events into context?	___	___
22. Does the text point out applications of the information?	___	___
V. Instructional Devices		
23. Does the text contain a table of contents?	___	___
24. Does the text have a glossary?	___	___
25. Is there an index?	___	___
26. Is there an overview, preposed questions, or diagram that emphasizes what is to be learned in the chapter?	___	___
27. Does the text include marginal annotations?	___	___
28. Does the text contain chapter summaries?	___	___
29. Does the text have problems or questions at the end of each chapter?	___	___
30. If the text has problems or questions at the end of each chapter, do they help clarify the information presented in the chapter?	___	___
31. Does the author provide information in the text or at the end of the chapters or the text that helps you apply the knowledge in the text to new situations?	___	___
Total	___	___

Score:

Give 1 point for each criterion satisfied.

Maximum score possible: 31 points

Interpretation of score: A score closer to 31 implies the text is friendly; scores closer to 1 suggest the text is unfriendly.

Field tests. At present, little can be said about the research evidence supporting field tests as a procedure for selecting textbooks because no evidence is available. Furthermore, very few discussions of how to conduct field tests are available. This section, which distinguishes between field test tryouts and field test inventories, necessarily will be brief.

Field test tryouts consist of classroom trials with the materials being considered for selection. Teachers take samples of the materials into their classrooms and conduct lessons with the materials as part of the everyday routine. The difference between a field test tryout and regular instruction is that with tryouts teachers pay especially close attention to their students' reactions to the materials. If the students correctly answer questions about much of the material, then teachers have reason to believe that the level of difficulty is appropriate. If students comment that the materials are interesting, then teachers have more positive data to consider. Trying out materials for an extended time is recommended in order to become as familiar as possible with them.

Rather than trying out materials in several lessons, field test inventories can be conducted. These inventories are patterned after group reading inventories, which also are termed content reading inventories (17, 18). The difference is that the outcomes of field test

inventories are used to make decisions about selecting materials, whereas the outcomes of traditional reading inventories are used to make decisions about instructing students. Field test inventories consists of a set of 10 to 20 questions derived from a portion of the text being considered for selection. Materials are considered suitable for instruction if the students correctly answer about 75% of the questions.

A great deal of teacher judgment is involved in field test tryouts and inventories. Such judgments can be positive as well as negative factors in selecting the best materials. To repeat, there is a clear need for research-based insights and guidelines into procedures for textbook selection in the content areas.

Qualifications

Two qualifications should be kept in mind about the textbook selection procedures described above. First, checklists and field tests seem to be useful for evaluating texts on a somewhat general level. They are not designed to pinpoint the specific strengths and limitations of texts. Materials typically are uneven in their coverage of aspects of the curriculum. For instance, a U. S. history text might present westward expansion quite well but treat Reconstruction superficially. The presentation of certain topics might be inaccurate or incomplete. Teachers need to be sensitive to the inevitable shortcomings of their texts as they guide their students through it.

A second qualification about the selection procedures is that they emphasize considerations about instructional design rather than instructional content. The checklist and field test procedures presented here are most appropriate for determining whether students find materials

understandable. Checklists and field tests were not presented as procedures for determining whether the materials adequately covered the content and skills expected of students in a particular school district. For example, a text might present excellent higher-order comprehension questions but virtually ignore suggestions for outside projects. If such projects were considered crucial for meeting the objectives of a school district's curriculum, then that text would have a serious shortcoming. Textbook selection should be based on concerns for instructional content as well as instructional design.

Summary

In summary, this chapter presented a perspective on the role of textbooks in secondary schools. Most writers support textbooks as a supplement to daily instruction, although most teachers grant textbooks a central role in actual practice. Some powerful forces lead teachers to place textbooks in this role. Given the prevalence and authority of textbooks, procedures for selecting the best ones are crucial. Although the absence of research into this issue is extremely disconcerting, the use of checklists and field tests seems to comprise the best procedures.

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INTEGRATING ORAL AND WRITTEN LANGUAGE

How can teachers integrate oral and written language instruction?

In the everyday use of the word integration, as in the integration of the language arts, one might have the impression that what is meant is a bringing together of elements that otherwise would not be joined naturally. On the other hand, one might believe, like Margaret Atwell, that integrating the language arts is a superfluous process, given that "language is always whole...that readers are also speakers, listeners, and writers, and that to be any one of these means you will be all of them (5, p. 23).

Semantics aside, the holistic view of language as a communicative process provides a convenient and reasonable framework in which to explore ways of integrating oral and written language instruction. What is important for teachers to remember about holistic instruction in the language arts is the need to foster students' ability to communicate as social beings and to read, talk, listen, or write as the occasion demands, not as a discrete skills lesson dictates.

The answer to the question, "How can teachers integrate oral and written language instruction?" is in three parts. The first part describes the research basis for the oral language and reading connection. The second part does the same for the writing and reading connection. The third part contains two strategies (whose component activities are based in research) for helping teachers integrate oral and written language instruction.

Oral Language and Reading

There is strong correlational evidence of the relationship between children's oral language competency and their achievement in reading (24, 36). Beyond the correlational data, however, there are few studies that explore the nature of the cognitive relationship between listening and reading or speaking and reading (33, 12). What does exist on the relationship between speaking and reading is largely research done with younger children (4, 10, 20, 21).

At the secondary school level, research on the relationship between speaking and reading is even less prevalent than at the preschool and elementary level. Aside from the large process-product studies in which classroom interaction was investigated for its mediating influence on achievement rather than for its own sake, there exist only a handful of studies that look at how teachers' verbal patterns differentially affect their students' ability to interact in group discussions over assigned content readings (1, 6, 9, 13, 32, 46). Despite the fact that these studies suffer from limited generalizability because of the small number of students involved in each of the investigations, the results are fairly uniform.

In general, secondary school students' discussion of what they have read is limited to short answers (sometimes as short as 2-10 words), and their responses are directed to the teacher, rather than to each other. With two exceptions, recitation, rather than discussion, is a more accurate descriptor of what classroom interaction looks like, at least as reported in the research literature. In one study in which there was an exception to the recitation mode, the teacher made use of teacher/student-generated lessons as opposed to teacher manual-generated

lessons (46). The other exception was reported in a study by Walberg and his associates who showed that student-centered discussion is advantageous to learning (45). The implication here is that the degree of students' oral participation in completing textbook-related tasks can color what and how much they learn from reading. The second question in this chapter addresses the importance of oral participation in secondary school reading.

Writing and Reading

Several research studies conducted at the secondary school level have shown that the better the reader, the better the writer and vice versa. Other studies have demonstrated the positive effects of writing instruction upon reading development. Explanations of why writing instruction has an impact on reading development have varied from those that claim writing influences sight word recognition to those that view writing as a memory enhancer. Still others have suggested that writing instruction improves reading comprehension because reading and writing are reciprocal processes that involve the structuring of meaning (18, 38).

Further reading and writing relationships have been suggested, some from a theoretical perspective and others from empirical evidence. Smith, for instance, has argued that reading and writing fluency are learned as a result of experiencing the processes involved, not as a result of having been taught how to read and write per se (41). Petrosky has argued that students should be encouraged to make public their thinking about how they respond to what they are required to read (34).

Others have viewed reading as a monitoring process that enables the writer to make decisions about where he or she will go next in

constructing meaning (28). Besides developing self-confidence in the writer, reading for the purpose of monitoring can also aid comprehension of the text. Shanklin's view of the writing process casts reading in an important role. She points out that writers must read the text that they have created for several reasons: (a) as a means of confirming that what they have written is what they intended to write; (b) as a revisionist strategy for constraining what is forthcoming in terms of text production; (c) as a means of discovering one's own thoughts--of reflecting on the old in hopes of discovering the new; and (d) as a solution to the bottleneck caused by short-term memory limitations (39).

The writer-reader relationship has also been examined from the point of view of writing and reading as plan-based speech acts. That is, texts are produced by writers who have plans for how they can best communicate with readers; likewise, readers develop plans for making sense out of what writers are trying to communicate. Specifically, Tierney has identified three overlapping sets of concerns of both writers and readers:

(a) a set of concerns of writers for what and how the text might be negotiated by readers;

(b) a set of concerns of readers for what writers are trying to do; and

(c) a second set of concerns of readers for what they as readers need to do (i.e., for purposes of accomplishing a task or achieving an understanding) (44, p. 78).

In summary, writers and speakers do not just produce language for readers and listeners. Rather, all four--writers, speakers, readers, and listeners--engage in reciprocal processes aimed at creating understanding

through shared responsibilities of communication. To quote Nystrand and Himley, "When readers understand a text, an exchange of meaning has taken place. Writers have succeeded in speaking to readers" ((31, p. 198).

Strategies That Help Teachers Integrate Oral and Written Language Instruction

Language, whether spoken or written, is a highly complex and interdependent system for communicating one's ideas and needs. By its very nature, language learning implies that reading, writing, speaking, and listening are inextricably tied, one to the other. Here, the purpose is to provide two strategies that integrate, rather than isolate, the four language arts described above. Although neither strategy has a strong empirical base in terms of its effectiveness, each incorporates several activities that are grounded in current theory and research.

Listen-read-discuss: A content reading heuristic. This strategy was developed by Manzo and Casale (25). The L-R-D paradigm, as it is called for short, provides teachers with an instructional format that utilizes students' prior knowledge, optimizes the effectiveness of mini-lectures, and approximates the steps of a Directed Reading Activity. Briefly, the steps of the L-R-D are these:

1. Choose a particularly well-organized and well-written portion of the text to introduce this strategy.
2. Provide students with a mini-lecture over that portion of the text.
3. Then direct students to read the pages in the text that cover the material they have just listened to in the mini-lecture.
4. Involve students in a post-reading discussion of the assigned text in which basic understandings are

clarified and more critical issues are raised. The following questions are suggested as a means of evoking the type of discussion specified above:

a. What did you understand best from what you read?

b. What did you understand least well from what you heard and read?

c. What questions or thoughts did this lesson raise in your mind? (p. 733)

Free-response and opinion-proof: A reading and writing strategy. The theoretical rationale behind the free-response and opinion-proof strategy developed by Santa and her colleagues is based on four well-researched areas (37, pp. 347-351). One, students need to use their background knowledge to comprehend what they read. Two, students must learn to monitor their comprehension. Three, reading and writing require similar cognitive processing. Four, peer editing of students' written products enhances critical evaluation and thought, which are both central to the reading and writing process.

The four steps of the free-response and opinion-proof strategy are listed below.

Free-response. Introduce students to free-response with a literary or content selection that generates diversity of opinion as well as emotional reactions from students. One selection which has been used successfully with junior high and high school students is the short short story, "Old Horse." Give students the story with key vocabulary and ideas underlined or italicized to

stimulate student reaction and discussion. (See story on page 148.)

Begin with a few questions to help students use their own background knowledge in thinking about the selection. For example, "Are there any teachers you will never forget? Why? Have you ever been called obnoxious names by anyone?" Then let students examine the title and predict why this particular character is called Old Horse. Before reading, tell students that every time they come to an underlined or italicized phrase or word, they should stop reading and write down their reactions in the margin. Anything they jot down is correct as no one is going to be judgmental.

After students have finished reading and responding, lead a discussion focusing on their free responses. Free discussion and divergent opinions are encouraged with the teacher remaining the impartial facilitator so that student responses become the catalyst for discussion.

When the discussion has run its logical course, discuss the effectiveness of free-response as a reading procedure, leading students to note that the technique generates a lively discussion going far beyond mere recall of information. In fact, inferential, evaluative, and analytical thinking are the rule. Help students understand that free-response encourages active involvement in reading and the integration of their own background and knowledge with the selection's message.

Opinion-proof. Following free-response, begin the writing component by introducing students to an opinion-proof writing guide. Students should examine their free responses to determine any common theme or opinions. In using "Old Horse," suggest that readers jot down in the lefthand column of the guide (see Example 1 following the story) an opinion about "Old Horse." Next, have students reread the selection, underlining evidence to support their particular opinion. Any opinion is correct as long as it can be substantiated with evidence or inferences generated in the selection.

Writing. Students then write notes from their free responses and from the ideas they have underlined. When completed, students use the information to write about the selection. The opinion statement on the guide becomes the main idea of the paragraph, and the notes become the supporting details.

At this point, use the framed paragraph as part of instruction in writing. Framed paragraphs take many forms depending upon the assignment and the writing needs of students. (Example 2 relates to "Old Horse.")

Peer editing. The final step in this strategy is peer editing. Develop with the students a checklist specifying criteria for editing their paragraphs. For this assignment, the checklist might contain: (1) Does my paragraph contain a main idea statement? (2) Do I have evidence to support my main idea?

After developing the criteria, the students divide into editing groups of two or three individuals and read one another's paragraphs. In addition to enjoying each other's writing, students suggest revision based on these checklist criteria.

For example, students determine if one another's paragraphs contain a well-developed main idea or opinion statement. Then they evaluate whether the opinion statement is convincing, given the evidence presented in the body of the paper. Student editors also offer suggestions regarding mechanics and spelling. After editing, the authors can revise before submitting the draft for teacher evaluation.

Old Horse*

Old Horse was the algebra instructor at the school where I teach. I don't remember his real name any more. But he had a long face with big, square teeth, and so the students called him Old Horse.

Perhaps they would have liked him more if he hadn't been so sarcastic. With his cutting remarks Old Horse could force the most brazen student to stare at the floor in silence. Even the faculty had a healthy respect for his sharp tongue.

One day a boy named Jenkins flared back at old Horse, "But I don't understand this," said Jenkins, pointing to a part of a problem on the board.

"I'm not surprised," said Old Horse. "But do try to think a little today."

"But you don't help me enough," said Jenkins.

"I'm doing the best I can considering the material I have to work with," said Old Horse.

"You're trying to make a jackass out of me," said Jenkins, his face turning red.

"But, Jenkins, you make it so easy for me," said Old Horse--and Jenkins' eyes retreated to the floor.

Old Horse retired shortly after I came. Something went wrong with his liver or stomach, and so he left. No one heard from him again.

One day, however, not too long before Old Horse left, a new boy came to school. Because he had buck teeth and a hare lip, everybody called him Rabbit. No one seemed to like Rabbit much either. Most of the time he stood by himself chewing his fingernails.

Since Rabbit came to school in the middle of October, he had make up work to do in algebra every day after school. Old Horse was surprisingly patient during these sessions. He would explain anything Rabbit asked. Rabbit, in turn, always did his homework. In fact, he came early to class, if he could manage it. Then after the lesson, he would walk with Old Horse to the parking lot.

One Friday because of a faculty meeting Old Horse didn't meet with Rabbit. This afternoon I walked with Old

Horse. We were passing the athletic field when suddenly he stopped and pointed. "What's the matter with that one?" he asked. He was referring to Rabbit, standing alone chewing his fingernails while watching some boys pass a football.

"What do you mean?" I asked.

"Why doesn't he play ball, too?" Old Horse demanded.

"Oh, you know how it is. He came in later than the others, and besides--"

"Besides what?"

"Well, he's different you know? He'll fit in sooner or later."

"No, no, no. That won't do. They mustn't leave him out like that."

Then we had to break off the conversation because Rabbit had hurried over to join us. With a smile he walked beside his teacher, asking him questions.

Suddenly one of the boys from the athletic field called out, "Yea, Old Horse! Yea, Old Horse!" and then he threw back his head and went, "Wheeeeeeeeeee!" like a horse's whinny.

Rabbit's face reddened with embarrassment. Old Horse tossed his head but said nothing.

The next day the students from my fifth hour class came to my room awfully excited. Old Horse had gone too far, they said, he ought to be fired. When I asked what

had happened, they said he had picked on Rabbit. He had called on Rabbit first thing and deliberately made him look ridiculous.

Apparently Rabbit had gone to the board with confidence. But when he began to put down some numbers, Old Horse said they looked like animal tracks in snow. Everybody snickered, and Rabbit got nervous.

The Old Horse taunted him for a mistake in arithmetic. "No, no, no. Can't you multiply now? Even a rabbit can do that."

Everyone laughed, although they were surprised. They thought Rabbit was Old Horse's pet. By now Rabbit was so mixed up he just stood there, chewing his fingernails.

"Don't nibble!" Old Horse shouted. "Those are your fingers, boy, not carrots!"

At that Rabbit took his seat without being told and put his red face in his hands. But the class wasn't laughing any more. They were silent with anger at Old Horse.

I went in to see Old Horse after my last class. I found him looking out the window.

"Now listen here--" I began, but he waved me into silence.

"Now, now, now, look at that. See?" He pointed to Rabbit, walking to the athletic field with one of the boys who complained about how mean Old Horse had been.

Example 2
Framed paragraph

Old horse was..... One reason I feel this way ..... In addition,..... Finally,..... Therefore,.....

An example of student response:

Old Horse was a very sensitive teacher. One reason I feel this way was because of his ability to understand Rabbit. Rabbit was not liked by the other students in his class because he was a friend of Old Horse's. In addition, Old Horse understood Rabbit's need to become a part of a group of friends, and Old Horse knew that he was part of the problem. Finally, Old Horse forced Rabbit to dislike him so that he could become accepted by the other students. Therefore, Old Horse was a very sensitive man. He even sacrificed himself for the sake of his student.

How can teachers talk with students about their reading? How can students talk with each other?

A legitimate concern of secondary school teachers is how to help students learn from text using the discussion method. Their concern is supported by two of the comprehensive educational reform studies released recently: A Nation at Risk (30) and Goodlad's "A Study of Schooling: Some Findings and Hypotheses" (19). Also, the National Assessment of Educational Progress (NAEP) recently released its report on the trends in reading achievement over the last four national assessments from 1971-1984 (29). Like the two reports that preceded it, the NAEP report has called for reading instruction that places an increased emphasis on higher level reading and thinking skills. One of the activities recommended to foster the development of these skills is the discussion of information drawn from students' reading experiences. As Smith and her colleagues have noted, discussion helps to "...soften the boundaries between the language of text and the language of the environment" (42, p. 25).

"Doesn't he have a special class with you now?" I asked after a moment.

"He doesn't need that class any more," said Old Horse.

That afternoon I walked with Old Horse to the parking lot. He was in one of his impatient moods, and so I didn't try to say much. Suddenly from the players on the athletic field a wild chorus broke out, "Yea, Old Horse! Yea, Old Horse!" And then Rabbit, who was with them, stretched his long neck and screamed "Wheeeeeeeeeee!"

Old Horse tossed his head as if a large black fly were bothering him. But he said nothing.

*"Old Horse" by Oliver Andresen was printed in **Luther Life**, vol. 71, November, 1959 and reprinted by permission of the author in **How to Read a Book** (Sargent, Huus, and Andresen, 1970).

Example 1

Opinion-proof writing guide

Opinion state	Evidence to prove my opinion
Old Horse was sensitive.	He was patient with Rabbit. He wanted Rabbit to belong. Old Horse forced Rabbit to dislike him. He put himself down for the sake of Rabbit

Unfortunately, despite the expressed concerns and research that indicate learning is related positively to higher frequencies of student talk relative to teacher talk, reading methods textbooks generally do not provide the preservice or inservice teacher with suggestions about how to conduct a discussion (9). Singer and Donlan's book, Reading and Learning from Text, is the one major exception; the authors of that text devote an entire chapter to discussion (40).

Definitions of Discussion

Some of the early pedagogical writers equated discussion with the conversational method--an informal chat that carried on in a free manner without any overt tones of formal instruction (23). Teachers who used this method encouraged students to speak freely on whatever topic they wished; the teacher's role was one of directing and guiding students' thoughts by asking them frequent questions, often for the purpose of holding their attention. Later, discussion was described as a "...cooperative attack on a common set of problems, based on a common set of data, materials, and experiences" (7). Stanford and Stanford added a dimension: "to gain feelings of acceptance and belonging" (43, p. 16). In a definitive work on discussion entitled Education, Democracy and Discussion, British philosopher David Bridges posed what he termed the necessary and sufficient conditions for specifying that individuals are engaged in a discussion: Individuals "...are putting forward more than one point of view upon a subject...[and] are at least disposed to examine and to be responsive to the different points of view put forward, with the intention of developing their knowledge, understanding and/or

judgment on the matter under discussion" (8, p. 15). Finally, discussions can serve several instructional purposes. They can be used to induce subject mastery, to bring about a change in attitude, or to engage students in problem solving (17).

Planning and Implementing a Discussion

Planning and implementing a discussion has been compared to playing a board game, such as Monopoly. Just as in most games, it is usually the cards you choose and the moves you make that govern the outcome of the game, so it is with the effective planning and implementation of discussion. Neither students nor teachers can play the game effectively if they merely rehash what was read. A more effective game plan calls for taking into account six aspects of an effective discussion: re-educating teachers and students on what effective discussions look like and what roles teachers and students play in them; planning how to use the discussion method, taking into account the purposes of the assignment and the content of the text; selecting appropriate roles for group members; choosing appropriate discussion strategies; guiding and monitoring an effective discussion; and assessing the discussion process. Each of these aspects is described below.

Re-educating students and teachers. Teachers and students alike need to put aside the notion that discussions are "the nice extras" they do if they have time. Granted, discussions usually are less efficient timewise than lectures or question-and-answer sessions, but they can be made more efficient with proper planning. An important aspect of the re-education process is helping students learn to listen and respond to

others' points of view. Turntaking need not be limited to the raising of hands and the gaining of the floor through teacher approval when students are re-educated as to what their responsibilities and roles are during discussions. Students must be willing to study their textbook assignments prior to class time, to react to and to interact with other students, and to rely on the teacher only as a group member who can intervene to refocus the discussion in order to keep it on track. In short, students cannot remain passive participants if the discussion is to be effective. Teachers, too, need to re-educate themselves about the discussion process. Ideally, the teacher's role changes from that of information giver or examiner--roles typically associated with lecturing and recitation--to that of a resource person or a facilitator. This change from a directive to a more nondirective role is the inverse of the student role change recommended above.

Planning for a discussion. Planning for an effective discussion begins with determining the purpose of the reading assignment and making a decision about how many students will be in the discussion group. For example, a large group discussion might be more beneficial if the teacher's purpose is to have students engage in problem solving. Planning for a discussion also involves specifying one or more of the objectives listed below:

(a) to tap the resources that students bring to their school subjects;

(b) to provide students with the necessary time to formulate their own applications of abstract principles;

(c) to obtain immediate feedback on how well students are understanding a lesson's objectives;

(d) to provide students with instruction and practice in how to think about particular subject matter;

(e) to build students' confidence in their ability to evaluate the logic of their own ideas and the ideas of others;

(f) to promote student awareness of the need to formulate problems and questions based on information gained from reading or listening to a lecture; and

(g) to foster the notion that new ideas may challenge and sometimes change one's previous ideas (26).

Selecting group roles. Groups are composed of individuals. Each member of the group possesses different skills and interests. The teacher's responsibility is to see that the group functions as a whole. That is, to be effective, a discussion must involve each student. Quite often, the teacher may have to serve as a facilitator of group discussions to ensure that quiet or passive students have an equal opportunity to express their ideas. If the facilitator sets the tone of a discussion by putting forth a critical issue or posing a provocative question, the students will follow through, at least for a time. At some point, however, the discussion will begin to wander, and the teacher will need to assume the role of facilitator to redirect or refocus the students' talk. As long as the teacher keeps a low, but supportive, profile, the discussion will belong to the students. (For a more detailed discussion on grouping, see Chapter 10.)

Choosing appropriate discussion strategies. Professional articles and methods textbooks used in teacher education courses frequently feature strategies designed to help students discuss their background experiences in relation to the material they are assigned to read. Although empirical support for many of these strategies is slim, there are some which have a strong intuitive appeal. Three of those strategies are described below. They were selected on the basis of their judged usefulness in helping students to read and think critically through whole class discussion.

Modeling after Posner's four-step model of conceptual change instruction, Hynd and Alvermann developed a conceptual change discussion strategy that teachers can use when students hold incorrect ideas about a concept and are unwilling to relinquish those ideas, even when they are refuted in their textbooks (35, 22). This situation occurs frequently when students are asked to read text that presents some highly counterintuitive information--for example, Newton's laws of motion. There are four steps to the conceptual change discussion strategy. The example here makes use of the confusion surrounding the medieval impetus theory vs. Newton's theory of motion. Impetus theory states that an object maintains its forward motion because of an inner force acquired when the object was set in motion. According to impetus theory, therefore, a ball that is whirled in a circle at the end of a string will continue to travel in a circle if the string breaks. Newton's theory of motion, on the other hand, states that an object continues to move forward until another force acts on it to change its velocity. Steps in the conceptual change discussion strategy follow:

(1) Develop student dissatisfaction with the misconception in a prereading discussion in which you elicit from students their predictions about the path a stone will take if dropped from shoulder height by a person walking forward at a brisk pace. Ask students to sketch what they think will happen. Next, have them read an appropriate section of the text assignment to see if Newton would agree with their predictions.

(2) Determine through discussion whether the new (correct) conception is understandable. Students can demonstrate whether or not they understood the textbook explanation by reconstructing their sketch from Step 1. (Note: A dictionary definition or illustration of a parabola may be helpful.) The students may not be willing to relinquish their belief in impetus theory quite yet. It is only important at this point that they can represent correctly the path the stone would take according to Newton's theory.

(3) Determine if the new conception is plausible. Help students reconcile the text information from their previous conceptions of motion theory by reading aloud to them a portion of an encyclopedia article on the myths surrounding the medieval impetus theory. Be careful, however, that students do not think they are alone in their misconceptions. Explain that many people today still find it difficult to give up their belief in the impetus theory.

(4) Invent a situation for making use of the new conception. The objective here is to help students convince themselves of the usefulness of Newtonian mechanics in explaining something of real-world importance to them. Athletes would find Newtonian

principles of motion of importance in understanding their various activities. Students could be asked to predict, for instance, where a ball carried at shoulder height by a basketball player will land if it is dropped while he or she is walking forward at a brisk pace. Or they might be asked to predict where rescue equipment or vital supplies would fall if they were dropped from an airplane or pushed off a cliff to people waiting for relief below. Students asked to think abut these situations might be convinced of the need for learning Newtonian principles.

Unlike the discussion strategy presented above, the content prompts strategy is useful when unstructured or nondirective discussion is the objective. Eileen Francis' Discussion Development Group in Edinburgh, Scotland, has used the content prompts strategy for over four years in their work in developing free and open discussions over controversial, as well as noncontroversial, issues (16). The strategy works like this:

(1) Prior to the scheduled class period in which this strategy will be introduced, type or print a number of statements (i.e., prompts) about the topic to be discussed. Fold the strips and place them in a box, from which each member of the group draws an equal number of "prompts." Allow each student a few minutes to think about the statements they drew. For example, the statements about the topic "Causes of Juvenile Delinquency" might include the following:

(a) Parents let teenagers get away with too much today.

(b) Most delinquents are lonely--they commit [bad] acts because they have few friends.

(c) Rising unemployment is the problem--teenagers have feelings of hopelessness and injustice (16, p. 3).

(2) After about 5 minutes have elapsed, encourage the students to participate in an open discussion of the issue. It is at this point that the content prompts come in handy. While not all students will want to use them, the shy, less assertive members in the class may find the prompts useful as catalysts to get their own ideas before the group.

Another discussion strategy involves initially assigning the same reading material to all students, but then breaking the group into subgroups for the purpose of assigning the smaller groups different tasks to complete. According to Dolan and his colleagues, the objective is for each subgroup to devise a set of questions for the class as a whole (14). They suggest the following tasks be placed on 3" x 5" index cards and distributed to the various groups:

(1) List three statements of fact and three of opinion. Then ask the class during whole group discussion to determine which is which.

(2) List the important topics in the passage and ask the class to weigh which four are the key ones.

(3) Present two arguments to support alternative explanations to a particular issue raised in the text assignment. Then ask the class to determine which argument is the stronger.

(4) Devise a set of questions which can only be answered through reference to several pargraphs in the text.

(5) Test a textbook author's assertions by referring to other sources.

(6) List three salient points which are not affected in their importance by the order in which they are presented in the text. Then list three with a sequence ot presentation that is crucial. Randomly present the points to the whole class and let the members categorize them.

Guiding and monitoring the discussion. The following dscussion tips provide a practical approach to guiding or facilitating group talk once it is initiated (3).

(1) Establish the relevance of the day's topic to the students' needs.

(2) Personalize the discussion by using concrete, individualized examples and questions.

(3) Actively involve every person in the class, either through eye contact or verbal means. Let each student know that you're aware of his or her presence.

(4) Call on students to review and restate concepts frequently.

(5) Be patient. Allow time for students to discover and express ideas.

(6) Be a user--not an abuser--of humor in the classroom. Laughter is sometimes the best medicine.

(7) Be vulnerable. Share yourself and your experiences with the class and encourage students to reciprocate.

(8) Be comfortable with one another. Make time to get to know your students as individuals, not just as names in a grade book.

(9) Clearly establish the pecking order in your class. Every ship must have a captain, as well as a crew, to run efficiently.

(10) Create an overall environment in which both the physical and emotional settings are conducive to learning.

(11) Controlled combustion is a must to clear the air. Don't hesitate to allow a little controversy to enter a discussion. Just as sparks ignite a fire, controversy provokes a discussion that may lead to the discovery of new ideas.

(12) Look at questions not only in terms of type and level to be developed, but also in terms of when and where to use them during a discussion. Timing is important.

(13) Be a positive and productive leader. Keep the discussion constructive and channeled to pertinent issues.

(14) Acknowledge the worth of all responses, as well as the contributions of all responders.

(15) Bring closure to a discussion by allowing time for "wrap-up proceedings." Call attention to what the class has accomplished and give them a preview of the next day's coming attractions.

Assessing the discussion. After a large group discussion, the teachers and the students need to determine the effectiveness of group interactions, as well as whether or not the purpose for holding the discussion was met. If a videotape or audiotape is made of the group, it can be shared with students. Quite often, when individuals who have blocked a free-flowing discussion see themselves in a group situation, they are better able to adjust their roles in future discussions. Also, both the teacher and the student have a better appreciation of how a discussion functions once they have analyzed it.

Accommodating Individual Differences Within a Discussion

Adapting the discussion method to accommodate the widely divergent reading levels within the typical classroom is a challenge, but not an insurmountable one. The discussion approach "makes the status structure of the classroom salient and allows it to become the basis of the prestige and power order within the interacting classroom group" (10, p. 184). The simplest and most effective way to deal with this problem is to group heterogeneously and impress upon students that there is no single ability relevant to all learning situations; therefore, individuals must not be judged on preexisting status characteristics. As discussion leaders, teachers must remain alert to the possibility that through their interactions with students of different ability levels, they may also impart a differential in status structure (11). For instance, reading instruction at the elementary school level has been shown to vary systematically for students of different ability levels, as well as for members of different socioeconomic and ethnic groups (2). Whether these findings generalize to teachers and students at the secondary school level cannot be determined from the existing research.

Teachers can accommodate students with widely divergent reading levels during a discussion of previously assigned textual material by skillfully coordinating questions with students' interests. Students, too, may be cognizant of differences in classroom competencies, e.g., they appear to adopt the same patterns to communicate with their teacher as they do to recall information from text in the presence of their teacher (27). In a related line of research, low-anxiety students performed better than high-anxiety students in classes where discussion was the predominant teaching method. High-anxiety students did better

than low-anxiety students in lecture method classes, however (15). Implications for instruction would seem to point to an adjustment (either up or down) in the amont of structure a discussion leader would impose to match his or her students' anxiety levels.

Summary

The correlational relationship between oral language competency and reading achievement is strong and well-documented. Writing instruction, too, is known to have positive effects on students' ability to comprehend what they have read. Reading plays a central role in the writing-reading connection. Writers are themselves their very first readers. Both writers and readers share overlapping concerns for how meaning will be negotiated from texts. Strategies are available for helping students integrate their reading, writing, speaking, and listening processes. The discussion method, in its many variations, is a legitimate approach to fostering teacher-student and student-student interaction in the secondary school classroom. To use the discussion method effectively, teachers must consider the following: purpose and content, a means for selecting appropriate roles for group members and appropriate discussion strategies, a plan for guiding and monitoring the discussion, and a means for assessing the discussion process per se.

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GROUPING

What are the mechanics of group work in the classroom?

Considerable research exists about how to use small-group instruction in the classroom. Most of this research has been centered at the elementary level where groupings and priorities are different from those at the secondary level. Elementary-level groups focus on learning-to-read strategies and often occur in ability-based, small groups (7). In secondary clssrooms, small-group instruction can be rare, even though group work can have a positive effect on students' self-concept and achievement (14).

If small-group instruction facilitates learning, why is group work typically missing in many secondary classrooms? One problem is that group work can be difficult to manage. Teachers--as well as students--require specific types of training if small-group instruction is to be effective. This chapter discusses the types and purposes of different classroom groups, details the problems associated with managing small-group work, and suggests some specific approaches for managing group work during content reading lessons.

Classroom Groups and Their Purposes

Early content reading textbooks placed students in groups according to ability (cf. 8). Less able students were given lower level, literal tasks while more able students completed higher level, applied tasks. The idea behind these groupings was to be able to serve a range of ability levels according to their capabilities. Research has shown that homogeneous groups are ineffective in challenging group members beyond their current capabilities (20).

More recently, content reading emphasizes heterogeneous groupings, mixing knowledge and abilities within small groups (9). The principal method of forming these groups is "random grouping" (9), though many teachers opt for other methods of achieving a heterogeneous mix in the groups (3). For example, some teachers designate ability levels for their students (low-medium-high) and then assign students representing each level to the groups. Other teachers add concerns about behavior problems to the selection process. The composition of small groups is crucial for implementing content reading instruction (19).

A frequent criticism of heterogeneous small groups is that the brighter students do all of the work for the other students. Research on group composition has shown, however, that in mixed groups, both high- and low-ability students experience opportunities to thrive on their differences. Since low-ability students are more accustomed to lower level, literal tasks, they become good fact finders within the group while high-ability students can gloss over important details. Higher, applied-level tasks are often accompanied by a great deal of debate. On these tasks, high-ability students can teach low-ability students to think about and substantiate their opinions. Consequently, in heterogeneous, small-group discussions, students of varying knowledge and abilities can guide each other's learning (22).

Within content reading, small-group instruction is viewed as a "guidance strategy," that is, discussion within small groups should guide students in using their prior knowledge to construct meaning (9). Placing a mix of students in a small group creates pressure for discussion: some students will have information that others lack. If study guides require group discussion and agreement, students will need to share whatever

knowledge they have available in order for the groups to make a decision (9).

In the research literature on grouping, many methods and purposes are associated with small-group instruction. One of the most familiar approaches involves implementing principles of cooperative learning. Cooperative learning focuses on academic tasks where students succeed only if the small group succeeds in making cooperative decisions (12). Among the variations in cooperative learning is Teams-Games-Tournaments (TGT) approach (6). In the TGT approach, students prepare each other as a team to compete against other teams in academic contests. Another variation is called Student Teams Achievement Divisions (STAD) (17). Students in STAD prepare each other to succeed on tests of their knowledge of academic content. Students within each division receive the same team score. A third variation, called Small-Group Teaching, engages students in cooperative inquiry (15). Teachers select an initial topic that students refine into subtopics. Small groups conduct research and collectively prepare a report that is judged by the rest of the class. These variations have all been shown to have a positive effect, both on achievement and on students' attitudes toward instruction (18).

Cooperative learning groups are similar to those currently used in content reading with some important differences. Cooperative learning and content reading share the goal of fostering group cooperation so that students learn to learn from each other. Differences center on ways of achieving this goal. Because cooperative learning focuses primarily on group interaction, its group procedures tend to be more elaborate than content reading. Content reading, in contrast, balances group work with a concern for reading that translates into a much simpler approach to

group interaction. For example, cooperative learning emphasizes individual student roles much more so than content reading. A cooperative learning group may involve four or five roles, while a content reading group may only have a leader (5).

Research suggests care in combining cooperative learning with certain types of academic tasks (18). For example, academic tasks requiring low levels of cognitive activity, such as acquiring basic knowledge, can be easily combined with more complicated cooperative learning approaches. On the other hand, more complex academic tasks, such as problem solving, work best in the context of simpler cooperative learning approaches. Since content reading often involves tasks requiring higher levels of cognitive activity, such as reasoning, it is probably best to use simpler forms of cooperative learning in conjunction with content reading (5).

Another purpose for using small-group instruction involves the use of competition. To engage in group competition, students must perceive that their success depends on the failure of other students with whom they have been grouped (10). Most classrooms are replete with examples of competitive group tasks. Competitive tasks include tests and contests in which students compete with one another within their groups, rather than cooperating toward a common goal. One of the more important principles to emerge from research on grouping has been that a balance of cooperative, competitive, and individual experiences can positively influence students' social, emotional, and intellectual development (10). Overuse of any form of grouping can interfere with these types of development.

Content area teachers often find it difficult to integrate principles of group learning with content reading (5). This difficulty is important since effective small-group instruction rests on the ability of the teacher to create and maintain a climate conducive to small-group learning (19). Problems in managing small-group instruction are taken up in the next section.

Problems in Managing Small-Group Instruction

In a study of content area teachers trying out small-group and content reading instruction for the first time, a common concern was what they called "the problem of letting go" (5). Teachers in the study were referring to their own anxiety in allowing small-group instruction to occur without frequent teacher intervention. Each expressed concern over whether students knew enough about grouping to conduct productive small-group discussions.

With the problem of letting go often comes too much teacher intervention in small-group discussions. Well-meaning teachers will approach a group to check on their progress only to prescribe their decisions and point out what he/she feels is essential information. When this happens, students are no longer responsible for cooperating to make their own decisions, the principal advantage of work in small groups. While teacher monitoring is important in guiding students during small-group discussions, too much teacher intervention limits opportunities for students to learn to function independently (4).

Another problem in managing small groups is that students do not always know how to work productively. Students' lack of awareness of the purposes and pocedures for working in the groups is the major contributor

to this problem. In addition, students may lack the motivation to engage in small-group work (10). Research on cooperative learning talks about the need for clearly defined rewards with any type of grouping (18).

Many other variables can hinder students' group work. By its nature, group work tends to place greater responsibility for learning on the student (18). Students who have grown comfortable sitting in rows and letting the teacher or other students take responsibility can be reluctant to work in small groups. Poor learners may exhibit some initial reluctance because they have rarely found success in other classroom situations. In homogeneous groups, students may compete with one another, whether the groups are composed entirely of low- or high-ability students (20). In heterogeneous groups, students may be content to let one or two of the smarter students do all of the work. Students may have difficulty completing any academic task within the groups, preferring instead to talk about anything but the lesson at hand (5).

To deal with the problem of helping students work productively in small groups, some teachers train students in principles of cooperative learning. For example, in the study of teachers' first experiences with small-group instruction and content reading, one teacher led her students through a grouping unit to acquaint them with the procedures and student roles involved in effective group work (5). Students learned group roles and procedures so thoroughly that they experienced difficulty in talking about the content reading guides. Instead, discussion was dominated by concerns about who was serving as an encourager, a checker, a fact finder, etc. The cooperative learning procedures created a new dilemma:

how to integrate principles of group learning with content reading and, at the same time, help students focus on content (5).

In short, the teacher who wants to incorporate small-group instruction into content reading instruction is faced with the problem of becoming comfortable with small-group instruction and of showing students how to work effectively in small groups. In the next section, specific suggestions are offered for how to establish small-group instruction in the secondary classroom over the course of the school year.

Steps for Managing Small-Group Instruction

An important principle of small-group instruction is that it takes time to learn how to learn in groups. It is also important to consider how you and your students can learn to function productively within the groups.

Teachers and small-group learning. Teachers can become comfortable with small-group instruction through a combination of knowledge, thoughtful monitoring, and professional support. Teachers who possess knowledge about small-group instruction generally have an easier time working with small groups in their classrooms (16). Beyond the suggestions offered here and in other sources (cf. 11), the best source of knowledge about small-group instruction can be the classroom.

By using groups and listening to students' discussions, teachers can learn about different aspects of small-group instruction. Teachers can selectively tape record small-group discussions to learn about students' comprehension of essential principles, the suitability of grouping and academic tasks, the social characteristics of small groups, and the effects of teacher intervention. Researchers recommend sharing the

recordings with students to add to their knowledge about the purposes and pocedures for grouping (1).

Some approaches to grouping during content reading assume that small-group instruction works best with active teacher monitoring. For example, Herber suggests that teachers should engage in a number of activities during monitoring, from initiating and regulating discussion to helping groups make decisions (9). They can also listen without interfering in productive discussion. For teachers accustomed to leading whole-class discussions, an active role in small groups can seem natural and comfortable (9).

Recent research suggests that the amount of monitoring may not be as important as what teachers say when they approach the groups. Barnes and Todd distinguish between "tight" versus "loose" teacher direction during monitoring (1). Under tight direction, the teacher offers directives and asks questions that get students to recall previously learned content. With this type of monitoring, the focus is on understanding content. Loose teacher direction, on the other hand, is characterized by inquiry and exploration. Under loose direction, the teacher may be more interested in the process students use to conduct discussion than in the conclusions students reach.

Overemphasizing either type of monitoring can lead to less than effective group learning. Leading students to the content without showing students how to make decisions about the content fails to give students opportunities to become independent in group learning. When students discover their teacher playing "guess what's in my head," small-group discussion loses its purpose and students can become adept at extracting information from the teacher without thinking on their own.

At the other extreme, teachers can emphasize group processes to the extent that both content and group tasks become poorly defined. Teachers need to strike a balance between directing students to the content while helping them think about how they will guide their understanding (4).

This balancing act, however, can be troublesome to a teacher accustomed to more direct involvement in student learning. Teachers need to gradually pull away from being at the center of instruction if students are to learn how to function in small groups (16). Monitoring can be especially useful in establishing this gradual process.

When students are new to grouping, it is important to exercise frequent monitoring. Active monitoring at early stages functions to remind students of the purposes for group work and helps them stay on task. Teachers need to communicate positive feelings about the groups and show students that their responses will be taken seriously (1).

Later, teachers should be cautious about interfering unless students ask for help, move clearly off task, or find themselves unable to make a decision. In approaching the groups, teachers should determine the group's need and then help the group progress. Sometimes all that is required is to clarify the task at hand. Other times, the group can benefit from additional information, though it is important to help the group see how the information was derived (4).

The frequency of monitoring can vary with the difficulty of a teacher's lessons and students' familiarity with small-group instruction. Students can require greater and lesser amounts of assistance, depending on the difficulty of the lesson concepts. Over time, monitoring can become less frequent as the teacher and students become accustomed to working in small groups (4).

Another way of helping teachers become comfortable with small-group instruction involves the creation of professional support groups (13). Like cooperative learning groups in the classroom, professional support groups operate on the principle that everyone in the groups succeed by helping each other. Professional support groups start by gathering together teachers who are interested in small-group instruction. Activities of the groups include reviewing the literature on small-group instruction, locating available resources, conducting and sharing lessons, and developing a questioning attitude about how principles of small-group instruction relate to other instructional approaches.

Gathering knowledge, monitoring small groups, and participating in professional support can help teachers better understand their role during small-group instruction. Teachers also need to help students learn to work in small groups.

Students and small-group learning. Attention to purposes for grouping and to student roles in groups is the key to success in small-group learning. In addition, it is important to start small and work up to greater levels of sophistication and student responsibility while teaching students to work in groups.

In the research on grouping, emphasis is placed on helping students see clear purposes for grouping. Some of this research suggests the use of rewards as one incentive for small-group learning. Cooperative learning involves interpersonal rewards: students can find satisfaction in achieving success as a group (10). Because these rewards are more intrinsic than explicit, it may be necessary to spend time explaining the benefits of cooperative learning. Some teachers prefer to make rewards

explicit by grading group discussions, awarding prizes for group cooperation, or charting group achievement (19).

Students need to learn about their roles and responsibilities while working in small groups. They need time to develop an awareness of how the groups operate. One problem with small-group discussions is that students do not always know how to conduct a discussion that goes somewhere (16). Students who give and receive explanations during discussion tend to achieve more than students who do not participate fully in the groups (21). Teachers can explain to students that the main function of the groups is to help them share information and wrestle with ideas, a process which works best with the maximum amount of participation. Tape-recording discussions and having students listen to themselves can be a way for students to examine the nature of their own participation (1).

Proponents of cooperative learning suggest that students adopt specialized roles while working in groups, including a checker, an encourager, and a decisionmaker (11). The reason for assigning these roles is to help students focus on the processes involved in cooperative learning. As suggested earlier, overemphasis on group processes can limit students' ability to deal with more complicated cognitive tasks (5). At the very least, small groups require someone to function as a group leader (16). Group leaders can be taught specific approaches to directing a group's discussion, including emphasizing participation and asking higher order questions.

To a great extent, group roles are influenced by the size and composition of a group. Groups that grow too large tend to disperse into subgroups, and students can experience difficulty in assuming coherent

roles within the resulting groups. Some research recommends that groups grow no larger than eight (2). In one study, students who began in a group of five ended up forming groups of two and three that were less successful than groups that remained intact (5). Herber suggests that five is the optimal group size (9).

Groups of varied composition engender greater participation than homogeneous groups (20). As suggested earlier, a mix of ability and knowledge within small groups tends to encourage cooperation. Teachers can use random grouping to choose students and use their own criteria to create an "ideal mix" (3).

Principles of group learning need to be very carefully phased in if students are to learn how to function in small groups. Singer and Donlan recommend three phases in implementing small-group processes while reducing the role of the teacher (16):

Phase 1: The teacher models the discussion he/she wants students to adopt in their groups.

Phase 2: Students become aware of the traits in the teacher's discussion and try out discussions of their own.

Phase 3: Students gain enough expertise in conducting discussion that they are able to manage their own discussions independently.

Integrating principles of cooperating learning with content reading requires similar attention to carefully phasing in each element of instruction (5). Students should learn to become more familiar with some of the complex cognitive tasks in content reading, like reasoning, before they attempt more complex forms of cooperative learning.

There are no existing guidelines for how long this phasing in should take. Many teachers report, however, that it takes at least a semester (half a year) before they and their students become comfortable with

working in small groups. The adjustment time can be decreased if other teachers in the same building use small-group instruction, or if students have experienced small-group instruction in previous teachers' rooms (5).

Summary

Group work can increase students' achievement and encourage positive feelings about learning. With appropriate knowledge and practice, teachers can use group work to help their students become more successful. Teachers and their students can become comfortable and productive in small groups by carefully phasing in small-group instruction. Monitoring students' progress and participating in professional support groups helps teachers learn to work in groups. Students learn by becoming aware of the purposes and procedures for small-group instruction.

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TEACHER DECISIONMAKING

How can teachers use information about students, textbooks, and instruction to facilitate learning from secondary school textbooks?

In much of the current research, the classroom is described as a highly complex environment (27, 28). Secondary teachers face problems posed by differences in students, gaps and changes in the curriculum, changing community and school mandates, and the need to preserve stable classroom routines (11). Along with this emerging picture of the classroom has come the realization that teachers' classroom decisions can be incredibly difficult.

In this environment, teachers often seek the security of covering content without considering the knowledge, skills, and motivation students need to learn successfully from secondary school textbooks (34). Together, these variables comprise knowledge about how students learn. Many of the variables discussed in this chapter are covered more thoroughly in other sections of the book. This chapter reviews and adds to what has come before to facilitate better decisions about how to help students learn from secondary school textbooks.

The nature of classroom decisions

Figure 1 depicts one way of thinking about the conditions that influence the decisionmaking process of teachers.

Conditions	→	Teacher Judgments	→	Teacher Decisions
Information about Students		Beliefs/Intentions/ Expectations		Planning decisions Writing objectives Choosing instruction
Nature of the Text		Conceptions about Subject Matter		Selecting methods of evaluation
Nature of Instruction				Making interactive decisions Maintaining activity flow Grouping and pacing

Figure 1

A Model of Teacher Decisionmaking
Adapted from Shavelson & Stern, 1981

In this model, teachers make initial judgments about varying instructional conditions, including the relation of students' available knowledge and motivation to the textbooks and instructional tasks students are about to encounter. Colored by a teacher's expectations and available knowledge, these initial considerations lead to planning decisions. Planning decisions reflect a teacher's best guess about what should occur in the classroom. Because of the changing nature of classroom instruction, teachers often adapt their plans during lessons. These adaptations are termed "interactive decisions." Ideally, teachers make decisions throughout this instructional cycle by taking into account all of the conditions, that is, they consider students, textbooks and instructional options before making instructional decisions (28).

In reality, the constraints imposed by time and by the quantity of subject matter to be taught can influence teachers' decisions to seek relatively stress-free routines in order to carry out their instructional goals (11). For instance, Goodlad found that teachers expected students

to read and study their textbooks outside of class and largely without teacher preparation or assistance (13).

Although this practice results in more time for lectures and other oral presentations during class time, it deprives the students of instruction in how to learn from text. There are other problems in relegating the textbook to out-of-class reading. While the practice encourages stability in the classroom, it can also foster an emphasis on factual learning at the expense of critical or creative thinking.

At another extreme, teachers can overly attend to the behaviors of their students. Most models of teacher decisionmaking depict the teacher as constantly reacting to student behavior in order to preserve classroom stability. An emphasis on students, however, ignores the fact that teachers' decisions result from complex judgments about the classroom environment, including the availability of students' prior knowledge and the appropriateness of a particular text and/or instructional strategy. Effective decisionmaking cannot occur when teachers ignore their responsibilities to provide direct instruction in learning from text. It can occur, however, when teachers are able to consider fully what they know about students, texts, and instruction (3, 9). While not a "how to," the next sections consider what is important to know about these variables in planning and conducting instruction.

Knowledge about students. Students vary widely in the amount of prior knowledge they bring to a task, in their ability to learn, in what it takes to motivate them, and in their use of megacognition skills. For any given lesson, there may be wide variations in the prior knowledge students have available. In teaching a science fiction unit, teachers

may find that some students have little relevant knowledge, while others have acquired considerable expertise through their own independent reading. The science fiction fans may be successful in this unit, yet they may be equally unsuccessful in a unit on poetry, particularly if all they do is read science fiction. Likewise, some students may possess greater prior knowledge about certain skills or the organization of different texts than others (21).

It is important to supplement and use students' prior knowledge during a lesson. Singer and Donlan investigated the effects of enriching and activating students' prior knowledge about stories (29). Students in the study were taught elements of stories, such as character, goals, outcomes and themes, to broaden their prior knowledge for stories. Next, students were taught to ask questions to predict what would come next in a story. In writing their questions, students had to call upon available prior knowledge. The questions directed students in using their prior knowledge while reading. At the end of six lessons, the students were proficient in generating good instructional questions. In addition, they performed much better than a control group in comprehending elements of complex stories.

Students can also vary widely in ability. Recent research on reading disability points to both mental processing and social factors that contribute to the difference between good and poor readers (17). Often, low-ability readers suffer from an over-reliance on one type of reading strategy at the expense of others. In contrast, proficient readers are flexible in their ability to apply different reading strategies according to different tasks and purposes (31).

Variations in ability can be classified according to speed and "power" distinctions (30). Speed refers to the actual speed a student reads and power refers to the extent to which a student is able to comprehend. Slow, non-powerful readers are virtual non-readers who experience considerable difficulty in completing required reading. Slow, powerful readers can successfully comprehend required reading, but only if given enough time. Fast, non-powerful readers are often referred to as students who "read pretty." They decode words successfully but experience problems in understanding what they have read. Fast, powerful readers can decode proficiently and they are also highly successful in constructing meaning from text. All of these readers can have difficulty in reading, even the fast, powerful readers, if they do not develop flexibility in light of different purposes (30).

A third area in which students vary is motivation. Brophy defines student motivation to learn as "a function of the value they place on reaching the goal and their expectancy of being able to reach it if they make the effort" (8). This definition emphasizes the intrinsic value a student places on an instructional task and on the degree to which the student has the knowledge and skills to complete the task. Students may be reluctant to read because they lack either the interest and/or the skill. Secondary schooling may contribute to students' lack of interest by failing to offer the types of functional reading tasks generally valued by society, such as reading for leisure or for work (14). Some students are able to overcome disinterest or deficiencies in reading skills because they intrinsically place a high value on being able to read.

Metacognition is a term originally coined to signify students' awareness of how they learn (5). Students who are metacognitively aware of the reading process typically exhibit the appropriate strategic behaviors when completing a reading task. That is, they take into account their own prior knowledge and self-motivation in completing a reading task (23). Teachers who take into account the importance of metacognition to learning from print have a clearer understanding of why it is possible for students to possess adequate prior knowledge, ability, and motivation, and still be unable to comprehend what they read. These are the students who vary in their metacognitive awareness of what they can do to read successfully.

Knowledge about the text. At least two areas are important when considering how the textbook influences what students learn: the text's structure and the text's content. Text structure can refer to the way either expository or narrative texts are organized (6). Well-organized expository texts possess identifiable superordinate and subordinate ideas (21). In addition, they often exhibit clear organizational patterns, such as cause-effect, compare-contrast, time-order, and enumeration (32). Well-organized narratives usually contain predictable categories of information, including a setting, a beginning, a reaction, an attempt, an outcome and an ending (20). These topics are covered in greater depth in Chapter 4.

The content of a text influences a reader's understanding to the extent that the content is familiar to the reader. For example, Langer studied the influence of different levels and types of topical knowledge on what readers comprehended from text (18). Not unexpectedly, readers who possessed greater content knowledge comprehended better than readers who possessed a more limited amount of content knowledge.

Problems with the text can occur when the author violates a reader's expectations for structure or when the content is particularly unfamiliar. When the text is the cause of the contractual violation between author and reader, the text is referred to as "inconsiderate text" (4). Inconsiderate texts may violate a reader's expectations in any numnber of ways, from omitting important components of a text's structure to inserting inappropriate tasks and incoherent content. When the gap between what students know and what the text presents is wide, instructional decisions must be made that will reduce the gap and foster learning.

Textbooks can be used as part of the decisionmaking process. There is some research to suggest that teachers can use the text to redirect students' attention to the topic at hand when discussions go astray, to guide students to information they overlook, and to resolve disagreements. The text can also be used as a resource for dealing with students' unexpected responses and for getting students to think about what they are learning (1). Used carefully, the textbook can facilitate rather than replace thoughtful teacher decisions.

Knowledge about instruction. Ideally, instruction should lead to students' independent use of textbooks. According to Herber, this goal can be accomplished if teachers learn to function as co-learners: guiding students, yet encouraging them to contribute ideas just as the teacher contributes ideas (15). Recent research suggests that effective instruction is characterized by teacher-directed activities during the early phases of instruction, followed by a gradual shift in emphasis to more teacher-student collaboration and student independence. This approach to instruction is referred to as "scaffolding" (33).

Instructional scaffolding requires teachers to make decisions about the degree of support they need to provide to help students learn from text. The instruction or "scaffold" is gradually withdrawn so that students can independently apply what they have learned. The goal of this progression is to provide appropriate support and encourage student ownership over the content and processes stressed during instruction. Within this framework, two types of strategies specifically help students develop independence in learning from secondary school textbooks.

One type of strategy involves prereading. Prereading strategies fall into two categories: strategies to prepare teachers and strategies to prepare students. Teachers' prereading strategies usually focus on planning or preparation for instruction. Strategies for students are those a teacher uses during class to prepare students for what they are about to read. The most effective prereading strategies are those that continually give teachers information while activating students' prior knowledge and motivating them to learn the required skills. Langer's prereading plan (see Chapter 12) is an example of this kind of pre-reading strategy (19). Other strategies that perform the same functions include advance organizers, semantic maps, structured overviews and brainstorming activities (32).

Some prewriting strategies also prepare students for learning from textbooks (7). For example, students could conduct a mini-research study on their own culture before learning about ancient or foreign cultures. The assignment could acquaint them with both the structure (research and report writing) and the content (culture) of what they are about to learn. Besides motivating and activating prior knowledge, these

strategies serve the function of telling the teacher what students are learning as a lesson progresses. The teacher can then keep track of individual differences and make the kinds of adjustments throughout a lesson that are necessary to help students build important concepts and function independently.

A second type of strategy used in scaffolding involves guided reading. Guidance strategies include the use of study guides and teachers' questions during discussions. Effective study guides help students use the text to construct, rather than merely reproduce, meaning (16). Considerable debate exists about the best ways to use guides to engage the reader with the text. Some of this debate centers on what types of tasks should appear on the guides. For example, some argue that questions should appear when students are learning from text. Others emphasize the use of statements in a reading guide. Herber suggests using statements in a lesson just prior to using questions (15). Students do not always know what is required in response to a question and questions can lead to the teacher's and not the student's own ideas. With statements, students are asked to decide whether the statements are supportable based on available evidence. Once students have demonstrated that they can identify relevant information, teachers can move to questions. This encourages greater student responsibility in interacting with the text. Greater responsiblility and appropriate guidance fosters students' awareness of what they can do to read independently (15).

How teachers use questions during discussion, however, is also critical in helping students develop independence in learning from textbooks (10). An important issue concerns the effects of asking lower-

and higher-order questions (24, 25). Researchers have recently analyzed the effects of questions relative to students' grade levels and abilities. Their findings suggest that lower-order or factual questions are superior for promoting basic skills among young children from low socioeconomic backgrounds. A diet of higher-order, applied type questions, on the other hand, is superior for developing thinking ability among average and above-average students entering high school (12).

Despite clear support for asking high school students higher-order questions, secondary teachers for the most part do not do so (13). In general, teachers tend to ask about three lower-order questions for every one higher-order question. These patterns vary among teachers. The aim of some teachers is to get students to respond with the correct answers in the shortest time possible. Student references to page numbers or short one- or two-word answers are considered sufficient evidence that students have understood and are ready for the next question. For other teachers, questions provide students with an opportunity to use their prior knowledge, to become immersed in the substance of the text, and to generate new ideas (10).

Knowing when to follow up on a previously asked question is governed in part by where the students are in the process of responding to that question. A summary of the general five-step process that students use to answer questions is included here (2, 12).

(1) Attending to the question. Slower learning and younger students are most successful when responding to factual level questions that are narrow and easily answered (25). Because

factual questions hold the attention of these students, secondary teachers can develop preferences for lower-order questions.

(2) Deciphering the question. Once the student has attended to the question, s/he must determine its meaning. Because teachers frequently compose questions on the spot, students may have difficulty interpreting what it is teachers are asking. Rather than request clarification, many times students will feign a lack of knowledge. Repeated occurrences of this pattern in the context of higher-order questions may eventually drive teachers toward the more easily phrased and less ambiguous factual level questions.

(3) Generating a covert response. Once a question has been interpreted, the student must activate relevant prior knowledge or think about the question based on textbook information. Thinking about a question, or generating a covert response, is a process that takes time. Most teachers wait for only one second before repeating the question or moving on to the next student (26). If teachers would wait for several seconds, students would have a better chance of generating a higher-order response. Instead, students are forced to respond to rapid-fire questioning that often results in responses at lower cognitive levels than the original question (22).

(4) Generating an overt response. A student who has gone through the different steps of the question-answering process has no guarantee that s/he will be given an opportunity to respond.

Depending on the teacher's bias in calling on students, some may get to respond only to factual questions while others may always be called on to answer questions requiring higher level thinking.

(5) Revising the response. Whether overtly given or covertly thought (in the case of listening to one's classmate respond), a student's answer may be wholly acceptable to the teacher, only partially so, or even totally unacceptable. Teachers need to provide explanations in order to offer feedback and correct any student misconceptions. For higher-order questions, the issue of feedback is complicated by greater difficulty in explaining once a student has demonstrated inability in answering a question. Again, the type of question and the student's response combine to create pressure on the teacher to ask primarily lower-order questions.

Given these patterns in oral questions and responses, secondary teachers face a special challenge: how to incorporate higher-order questions into their classroom discussions. Building an awareness of how and why students respond as they do is one way teachers can begin to break the tendency to focus on factual level questions. Another way involves allowing adequate time for students to go through all of the processes necessary in forming a response. Additionally, teachers need to spend more time offering feedback and explanations for why some responses are more appropriate than others. In following these recommendations, teachers can learn to ask questions that encourage students to generate, rather than regurgitate, ideas learned from text.

Summary

Effective teacher decisions are those guided by knowledge about students, textbooks, and instruction. Good teacher decisions are based on a balanced consideration of all three factors. Teachers need to incorporate students' prior knowledge, ability, and motivation into their classroom decisions. It is important for teachers to show students how to use their own resources to read successfully. Textbooks should support rather than replace teacher decisions. Teachers can use textbooks as a tool in building bridges between what students know and what they need to know. Effective decisions about instruction help students learn to use textbooks independently. By phasing in greater sophistication and more student respponsibility, teachers can help students make their own decisions about learning from secondary school textbooks.

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METACOGNITION

What is metacognition? What are some metacognitive strategies for teaching students to be active readers?

Metacognition, according to Flavell, refers to an awareness of, and an ability to capitalize on, one's own knowledge and thought processes as these are applied to some specific task (10). It is that general knowledge, then, which guides a reader in monitoring his or her comprehension processes through the selection and implementation of specific strategies to achieve some predetermined goal. Although the term metacognition is relatively new, the reading skills to which it refers have been discussed since the turn of the century (8).

In an effort to separate two, though not necessarily independent, phenomena associated with metacognition, Baker and Brown divided metacognitive activities into different clusters (6). The first cluster is concerned with the learner's awareness of any incompatibility between available knowledge and the complexity of the task at hand. The second cluster of activities is concerned with the active monitoring of one's own cognitive processes while reading. Directly related to metacognitive awareness of one's limitations and effective monitoring is the deployment of appropriate strategies. According to Baker and Brown, the choice of strategies will vary depending on whether the goal is to read for meaning (comprehension) or for remembering (studying). Reading for <u>meaning</u> generally includes the metacognitive strategy of comprehension monitoring, while reading for remembering usually includes organizing important information in preparation for a test, (e.g., self-checking one's understanding of the material or developing an effective repertoire of study strategies).

Reading for Meaning: Metacognitive Strategies for Teaching Students to be Active Self-Monitoring Readers

Thorndike, in discussing the results of his study of reading as reasoning, suggested that comprehension difficulties may arise if the reader fails "...to treat the responses made [to incoming information from text] as provisional and to inspect, welcome, and reject them as they appear" (32, p. 330). In effect, failure to test one' s understanding of what is read as one reads is a behavior reflective of poor comprehension monitoring.

Theorists have assumed that there are certain essential and definable skills, which when translated into pedagogical strategies, can induce active comprehension monitoring in novice or less competent readers. With the current emphasis on teacher-led direct instruction, therefore, it is not uncommon to find in many of the professional journals numerous accounts of successful attempts at teaching students a variety of metacognitive strategies (7, 29). The following strategies are representative of that larger body of literature.

A Pre-Reading Plan (PReP). PReP is a strategy for helping the reader anticipate what prior knowledge or background information will be needed to understand new information. This diagnostic strategy is particularly helpful to teachers who want to know what kind of a match they can expect between their students' background knowledge and the knowledge to be presented in a textbook assignment. Langer, who developed the PReP activity, suggests following this three-step plan:

1. Initial associations with the concept. In this first phase the teacher says, "Tell anything that comes to mind when..." (e.g., "...you hear the word "Congress"). As each student tells what ideas initially came to mind, the teacher jots each response on the board. During this phase

the students have their first opportunity to find associations between the key concept and their prior knowledge. When this activity was carried out in a junior high school class, one student, Bill, said "important people." Another student, Danette, said "Washington, D. C."

2. Reflections on initial associations. During the second phase of the PReP the students are asked, "What made you think of...[the response given by a student]." This phase helps the students develop awareness of their network of associations. They also have opportunity to listen to each other's explanations, to interact, and to become aware of their changing ideas. Through this procedure they may weigh, reject, accept, revise, and integrate some of the ideas that came to mind. When Bill was asked what made him think of important people, he said, "I saw them in the newspaper." When Danette was asked what made her think of Washington, D. C., she said, "Congress takes place there."

3. Reformulation of knowledge. In this phase the teacher says, "Based on our discussion and before we read the text, have you any new ideas about...[e.g., Congress]?" This phase allows students to verbalize associations that have been elaborated or changed through the discussion. Because they have had a chance to probe their memories to elaborate their prior knowledge, the responses elicited during the third phase are often more refined than those from phase one. This time Bill said, "lawmakers of America" and Danette said "U. S. government part that makes the laws" (18, p. 154).

Although research exists that suggests PReP is an effective strategy for raising available background knowledge in students as young as sixth graders, the strategy is probably most valuable for its diagnostic information to teachers (19). PReP can assist teachers in determining whether, and for whom, direct concept instruction is necessary prior to making a textbook assignment. For example, students who have demonstrated that they can draw analogies or make conceptual links between what they know and what is new are probably ready to read the assignment. On the other hand, students who have only some or very little background knowledge are candidates for prereading concept instruction. That is, they need the teacher's help to see relationships

between what they know and the new material to be presented in the text. Whether or not PReP is a metacognitive strategy that students will transfer from one setting to another is debatable at this time. Presently, the strategy is best suited to teacher-directed lessons involving students in groups of approximately ten or less.

Lookback or rereading strategy. When a reader uses compensatory or fix-up comprehension strategies during reading, we infer that the reader recognizes that meaning has been disrupted or lost and is in the process of trying to regain it. We know, for instance, that older and better readers spontaneously use the lookback or rereading strategy when they recognize that a comprehension problem exists (1, 14). Alessi and his colleagues reported a facilitative effect for computer-manipulated lookbacks on college freshmen's comprehension of text (1). In their study, students in the lookback group who responded incorrectly to questions inserted in an artificially constructed text on physiological psychology were automatically branched back, via computer, to the appropriate segment of text where the correct answer could be found. Since these results were obtained under laboratory conditions and by using artificially constructed text with mature readers, however, three very important questions remained. One, would using naturally occurring text produce the same results? Two, assuming that readers can learn to monitor their own comprehension failures, would it be feasible to expect that high school students could be trained to look back to the correct places on their own? Three, would these findings generalize to both good and poor comprehenders?

These questions were addressed in a study conducted by Alvermann and Van Arnam in which they constructed graphic organizers to represent the

author's organizational plan for two naturally occurring passages from a history text (3). The graphic organizers, sometimes referred to as structured overviews (see Chapter 5, Figure 1), were only partially complete in that certain key terms were purposefully omitted and replaced by slots or uniformly drawn rectangles. Tenth-grade history students were expected to use their content area textbooks to find the information that would correctly fill the empty slots. In effect, the graphic organizer was used as an adjunct aid for inducing students to look back in their texts when the teacher asked them questions that they could not answer from memory. The graphic organizer was described to the students as a "road map" that would help them find the missing information in the shortest time possible. The low-ability comprehenders, but not the high-ability comprehenders, were helped by the graphic organizer. This finding of differential effects for low-ability readers but not high-ability readers is common among several comprehension-monitoring instructional studies. Its implication for classroom practice is that attempting to teach good readers new metacognitive strategies may be dysfunctional and in some cases may even interfere with their previously learned strategies. Poorer readers, on the other hand, typically do not have (or at least do not use) task-specific strategies on their own and are helped by adjunct aids that induce these strategies.

Good comprehenders consistently demonstrate more spontaneous lookback behaviors than do poorer comprehenders (12, 14). Garner and Kraus concluded that "It...seems important to get on with the business of attempting to generate appropriate interventions to assist--upper-grade poor comprehenders in improving their monitoring facility" (13, p. 12). One such intervention is a text lookback checklist that grew

out of a study by Garner and her colleagues (15). The checklist helps students remember why, when, and where they should look back in previously read material. It is best used following a three-day training sequence that is described in detail in an article by Reis and Leone (24). Although the training sequence is too detailed to include here, the textbook checklist is provided:

Text lookback checklist

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1. Why should I look back?

   I will look back to pages I have read so I can locate information I don't remember.

2. When should I look back?

   I will look back when I think the questions ask about what the author or article said.

   I will not look back when the questions ask me what I think.

3. Where should I look?

   I will skim the article and look for key words and phrases.

   I will then reread sentences and entire paragraphs if necessary. (24, p. 418).

Self-questioning strategies. A variety of self-questioning strategies exist for helping students become active readers and thus overcome some of the obstacles to comprehension. One particularly appealing strategy for helping students ask questions about what they read, as they read, was developed by Raphael and Pearson for use in an instructional training study involving 4th-, 5th-, and 8th-grade students (23). Specifically, the students were taught how to judge whether questions could be answered from the text or whether they had to be

generated by the students themselves. For instance, textually explicit questions were those that could be answered directly from the text. In dealing with textually explicit questions, students were taught to ask, "Can the answer be found 'right there'?". By comparison, "Can the answer be found only when I 'think and search'?" was the question they were taught to ask in identifying inferences drawn from two or more statements in the text. "Do I have enough information to answer the question 'on my own'?" was the question students were taught to ask when the answer they were seeking could not be found in the text but could be formulated based on their past experiences and background knowledge. Raphael and Pearson found that the students who were trained in the self-questioning strategy did better than the untrained students on identifying the question types and giving correct answers. Thus, both their awareness of the relationship between questions and answers and their comprehension improved.

Another self-questioning strategy that is useful in helping students become active readers by monitoring their understanding of what they read as they read is SQ3R, which stands for survey, question, read, recite, and review (25). SQ3R is student-centered textbook study system, like the question-answer relationship strategy developed by Raphael and Pearson (23). SQ3R differs from the question-answer relationship strategy in two important ways. One, SQ3R assumes that students have already learned how to answer textually explicit and textually implicit questions; thus, it is an appropriate follow-up strategy to the one recommended by Raphael and Pearson. Two, SQ3R is a linear system; that is, the steps of surveying, questioning, reading, reciting, and reviewing must be followed in order from the first to the last.

Students who use this system have been taught first to survey a reading assignment to get a general idea, or the gist, of what the passages are about. Then they turn the headings and subheadings, often set off in boldface print, into questions. Next they read to answer their questions. They recite (either aloud or by taking notes) the answers that they have generated to the questions. Finally, students review those answers by rereading parts of the text or their notes to verify that they have remembered the information correctly. Although SQ3R has been called "the most widely advocated and emulated textbook study system," Fry warned that students will not usually learn how to use it, nor will they continue its use, if teachers do not involve them directly in the learning process (31, 11). That is, to be effective as a metacognitive self-questioning strategy, SQ3R must be taught by methods other than the lecture method alone. Stahl and Henk describe in detail three methods that have been shown to be effective in teaching students to use SQ3R. Briefly, these methods involve (a) teaching the individual steps of the system before integrating them; (b) teaching the overall system as a whole but only in response to a student demonstrated need for such a system; and (c) teaching the system as a whole several times a week and then giving students independent practice activities in using SQ3R (30).

A third self-questioning strategy, one that has gained widespread recognition because of its demonstrated transferability, is Palincsar's reciprocal teaching of comprehension monitoring strategies (22). Based partially on the ReQuest procedure developed by Manzo, reciprocal teaching makes use of four separate cognitive activities: summarizing (review), clarifying, questioning, and predicting (21). Each activity

is used in the context of a real reading situation. For example, summarizing is used as a self-review activity; it is used to state to oneself, the teacher, or to a group what was understood from a particular reading. Clarifying occurs only when the student's interpretation of the text is unclear or when the text itself is unclear. Questioning is not solely a teacher directed activity. That is, students are also encouraged to generate questions that might appear on a test or that arise naturally in the summarization activity described above. Finally, predicting is an activity designed to motivate students to engage actively in the comprehension of the next portion of the assigned reading.

Reading for Remembering: Metacognitive Strategies for Organizing Information for a Test

Increasingly, studies are appearing in the reading research literature that suggest that students who generate outlines or take notes while reading or shortly after reading textbook material enhance their retention of that material. In a study of ninth graders' ability to comprehend and recall eight passages from a history textbook, for example, Slater and his colleagues found that students who filled in an outline grid while they read a text passage accompanied by a structural organizer were helped significantly to remember what they had read. However, when these same students had access to the structural organizer without the outline grid, their comprehension was facilitated but their recall of the information was not facilitated (29) The technique Slater and his colleagues used did three things that appeared to help students be aware of and remember what they read: (a) it gave students advance

warning about the type of text structure they would encounter; (b) it told the students how to use that structure (e.g., cause-effect) in locating the causes and their effects, as well as related topics and supporting details; and (c) it provided an outline grid for students to use as they read. The cause-effect structural organizer and its accompanying outline grid that Slater, et al., used are provided here.

Structural Organizer Plus Outline Grid

Cause-Effect Structural Organizer

When reading non-fictional material, understanding the author's organization has three important advantages. It provides you with clues to remember much more of what you read. It helps you recall more of the major ideas in what you read, and it helps you to remember all of this information for a longer period of time.

Authors can organize their writing in several ways. One way of organizing a passage is to list causes and their effects. A cause and effect passage consists of a number of causes and a number of effects with supporting information related to each cause and effect. Additionally, a cause and effect passage may include related topics and supporting information for these topics.

For example, you might read a passage about the causes and effects of the increase in fuel costs in the United States.

A cause might be the greater demand for fuel. Supporting information about the greater demand for fuel might include (1) details about how much the demand for fuel has increased up to the present and (2) details about how much the demand for fuel will increase in the future.

An effect might be increased fuel costs. Supporting information about increased fuel costs might include (1) details about how much fuel costs have increased and (2) details about how this increase in fuel costs reduces the distance people can afford to travel.

A related topic might be that of how fuel increases are forecast. Supporting information about how fuel increases are forecast might include (1) details about how fuel increases are forecast for air transportation and (2) details about how fuel increases are forecast for ground transportation.

The following outline shows the organization of the passage just described.

Rising Fuel Costs in the United States

1. Cause: Greater demand for fuel
   Support: How much the demand for fuel has increased up to the present
   Support: How much the demand for fuel will increase in the future

2. Effect: Increased fuel costs
   Support: How much fuel costs have increased
   Support: How this increase in fuel costs reduces the distance people can afford to travel

3. Related Topic: How fuel increases are forecast
   Support: Details about how fuel increases are forecast for air transportation
   Support: Details about how fuel increases are forecast for ground transportation

The passage you will read consists of a cause, effects, and related topics. It consists of 1 cause with supporting information, 3 effects with supporting information, and 9 related topics with supporting information. That is, it includes 1 cause, 3 effects, and 9 related topics, and each of these is developed and explained in greater detail with supporting information.

As you read the passage, look for the cause, the effects, the related topics, and the supporting information. Causes, effects, or related topics are usually found in the first sentence of each paragraph, and supporting information related to a particular cause, effect, or related topic is usually found in the remaining sentences in a paragraph.

Starting on the next page, you will find a blank outline. Following the outline, there is a prose passage. As you read the passage, write down in phrases or sentences the cause, the effects, and the related topics of the passage and the supporting information on the outline. Do this as you are reading, not after you have finished reading. Every blank on

the outline represents a sentence in the passage. The order of the blanks on the outline is the same as the order of the sentences in the passage. Note that you must flip back and forth from the passage to the outline as you are filling out the outline.

Gold in California Outline Grid

1. Cause: _____
   Support: _____
   Support: _____
   Support: _____
   Support: _____

2. Related Topic: _____
   Support: _____
   Support: _____

3. Effect: _____
   Support: _____
   Support: _____
   Support: _____

(29, pp. 192-193).

Notetaking, too, has been shown to increase students' ability to remember what they have read (4). According to Sanacore, students who use study strategies like notetaking are metacognitively aware of the processes involved in studying to remember (27). They know, for instance, from past experiences that the completeness of their notes is related to achievement. However, research shows that students typically are poor notetakers. College freshmen may record as few as 11 percent of the important information while upper level "A" students may record only 62 percent of the key ideas from a lecture (16, 20).

Experimental studies that compare the facilitative effects on remembering by students who review their own notes only versus students who listen to a lecture and then review notes provided by the instructor favor the latter (17). However, reviewing the instructor's notes may not

be the best procedure for students to use. According to other research, students who review both their own notes and the instructor's notes remember more than do students who review one or the other (5).

What differences exist between proficient and less proficient readers in their use of metacognitive strategies?

Becoming a successful reader--one who is able to learn independently from text--requires proficiency in monitoring for comprehension and remembering. These two self-regulatory mechanisms are more likely to fall within the older and better reader's repertoire of skills than the younger and less able reader's repertoire of skills. Also, readers of any age and ability level are more likely to take responsibility for applying these skills when they are faced with tasks that are neither too difficult nor too easy (33).

Researchers have studied a number of metacognitive activities that are crucial to comprehending and remembering text. Ten of those activities are included below with a brief summary of the research findings pertinent to each activity (6).

1. Generally, advanced readers understand the demands of different tasks and are able to discriminate among those demands in selecting an approach to complete a specific task. They are also able to judge whether their knowledge level will permit them to complete a reading task successfully.
2. Good readers are capable of adjusting their reading behaviors to suit their purpose for reading (e.g., for the gist of a selection or for the details). Poor readers, on the other hand, do not exhibit this flexibility in purposeful reading; they use the same behaviors for both.

3. Focusing attention on relevant information in text increases with age. Secondary school students, unlike elementary age youngsters, not only are better at identifying what is important but they also are more apt to conceive of "importance" in the same way as adults.
4. Better readers at the secondary school level spend more time studying less logical passages than do poorer readers. However, the fact that poorer readers do not spontaneously monitor a passage for its logical structure does not mean that they are incapable of doing so with relevant instruction.
5. Poor readers at the high school level may not lack the appropriate background knowledge to understand a text as much as they lack an awareness that information learned in other classes and even outside of formal schooling can help them interpret what they read. A related problem is the tendency for many readers, despite their ability level, to accept unquestioningly information that is presented in their textbooks.
6. Good comprehenders are flexible in their use of the three cue systems (meaning cues, word order cues, and letter-sound association cues) of the English language that signal inconsistent information in text. Less able readers either fail to notice such inconsistencies in text or they concentrate on the difficult words and pay little attention to whether the text as a whole is making sense.
7. As might be expected, older students are more adept at spotting inconsistencies in text--for example, knowing when a text is

ambiguous, when a text does not present sufficient information, or when a text contains conflicting ideas--than are younger students. However, even junior and senior high school readers are apt to report inconsistencies in relation to their own prior knowledge rather than in relation to the logical inconsistencies within the text.

8. Knowing when one has failed to understand a portion of text is only part of the comprehension monitoring phase; one must also know what fix-up strategies to apply when comprehension is disrupted. One of the simplest strategies to use in retrieving lost meaning is to reread for clarification. Or, one might decide to continue reading, with the expectation that the author will soon provide the needed information. Finally, comprehension failures may be resolved by drawing inferences about what the author meant to convey, using one's prior knowledge and background of experiences.

9. As in so many of the activities listed here, developmental differences play a major role in students' ability to decide whether their goals for reading a particular text have been met, for example, whether they have studied sufficiently to pass a test on the information they have read. Rather than rely on external forces (parents, teachers, or scheduled study times) to tell them whether they have met their goals, students at the secondary school level need instruction in how to assess their own level of understanding. This may be accomplished in part by showing them how to engage in self-questioning and specifically in helping them perfect their ability to ask the right questions.

10. Strategy training has been shown to increase comprehension for less skilled readers. One study found no difference in comprehension between skilled and less skilled readers when the less skilled readers received strategy training in the use of story parts as an aid to comprehending (28).

The research literature suggests that developmental and proficiency differences among students appear in response to matters other than those related to knowledge about what strategies to apply, however (33). DiVesta and his colleagues, for instance, found that middle school and high school students selected fix-up strategies on the basis of how confident they were in their own ability to derive meaning from print. Less mature readers were more likely to attribute comprehension failures to their own inabilities or shortcomings (9).

In another study junior high students who were all within the average stanines on a reading achievement test were asked to rank themselves as being high or low in their ability to complete an essay or remember information about what they had read. Alvermann and Ratekin found that when these students' scores on an essay and free recall measure were adjusted for prior reading achievement, the self-perceived high proficiency group performed significantly better than the self-perceived low proficiency group. There was also some evidence to suggest that students' self-perceptions affected their choice of strategic activities. That is, students who thought of themselves as having little or no ability to deal with the criterial tasks reported reading carefully and slowly more often than students who rated themselves as having high proficiency in dealing with those tasks (2).

Summary

Metacognition refers to an awareness of one's own knowledge and thought processes in terms of a specific task. In particular, metacognition is what readers know about themselves, about the text they are to read, about the requirements of the task they must complete to provide evidence of their learning, and about whether they have the necessary strategic knowledge to complete the task successfully.

Metacognitive strategies in reading generally divide along the imaginary line that separates reading for meaning (comprehension) from reading for remembering (studying). Reading for meaning includes comprehension monitoring strategies such as PReP, lookbacks, and self-questioning. Reading for remembering includes, among many other self-monitoring activities, strategies for organizing important information, such as outlining and notetaking.

Students' awareness of comprehension problems and their success in applying fix-up strategies are known to vary across age and ability level. Although differences in age and ability level have been shown to influence how effectively one uses metacognitive strategies, those differences may not be as limiting as once thought. The fact that less able readers do not spontaneously apply a metacognitive strategy, such as self-questioning, does not mean they are incapable of doing so with relevant instruction.

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STAFF DEVELOPMENT

How can content area teachers be energized to respond to the reading needs of students?

While the question can be interpreted to have different meanings, our answer serves as a way to talk about staff development research and how that research can be used by a variety of school people to help all classroom teachers respond to their students' reading needs.

Perhaps the best way to energize content area people to respond to the reading needs of students is first to help them to understand what teaching reading in the content areas means and then to equip them with the skills to do the job. Content area teachers see themselves as specialists in particular disciplines. They have chosen to be trained in a particular subject that interests them and that they want others--their students--to learn (9). Reading instruction is not their area of specialty. Teaching reading is most often viewed by them as someone else's responsibility. Why should they even be interested, then, in knowing how to respond to their students' reading needs? No content area escapes the need for reading skills. Most content--or substance--of a course is presented in written form, usually a textbook. If the teacher wants that information to get off the printed page and, so to speak, into students, then students must know how to learn from their reading--not just how to recognize words but how to understand what they read.

Nobody likes to be expected to do something they're not comfortable doing. Content area teachers are no different. They can, however, given the opportunity for study and practice, help all their students improve their reading. An effective inservice education program can make such learning opportunities available. In fact, it's difficult to imagine a

successful content area reading program without a staff development component. High school teachers' lack of formal training in reading instruction requires that they learn how to help their students read after they've completed their preservice training.

Teachers are not the only personnel, however, that can benefit from a staff development program. Principals or superintendents concerned about low reading scores on achievement tests can use the information that follows as they work with a reading specialist to develop an inservice program for content area teachers. Reading specialists who have been asked to devise a plan of inservice can use the chapter as a guide for how to plan and conduct a series of effective inservice sessions. Their expertise in reading, along with the other chapters in this book, will help them determine what to cover in the sessions. Content area teachers, who are frustrated by their students' inability to understand difficult concepts presented in their textbooks, can use this chapter, too. Many times, content teachers would like to help their students, but they hate to give up valuable classroom time to teach reading skills. Besides, they don't know how to teach reading. In fact, they've had little or no formal training that would cause them to think differently (7, 20). With the information in this chapter, content teachers can be the catalyst for change in their school. They can begin the process that will energize all teachers to help their students learn from text.

This chapter will first review who must be involved in a content area reading program. Discussion then will focus on the research in staff development for information about how to organize and implement an effective inservice program.

What roles do the principal, the reading teacher/specialist, and the content area teacher play in the implementation of a secondary reading program?

Each of these people is critically important to the success of a content area reading program. The operation of a secondary school reading program like the one envisioned in this book and by others (8, 18, 21) requires substantial change from what now exists in many schools. The focus of this book is not on remedial instruction and pull-out programs for students performing below expected levels. Instead, the program suggested here focuses on all students and is taught by all teachers. The content of the program is determined by the individual course curriculum; the skills taught are those essential to understanding the material (8). Students needing additional help also attend special classes that operate as a supplement to the basic program. A program of this kind necessitates the involvement of administrators, reading specialists, and content area teachers; staff development is a central part of the total effort (18).

The support of school administrators--both superintendents and principals--is crucial to the success of a content area reading program (18). Administrators control two factors that are necessary for program success: staff time and school budgets. Decisions they make in these two areas affect the operation of the program. Teachers must be given time to interact with each other and to develop or adapt curriculum materials as they study different teaching strategies (18). This time costs money, but the payoff is great. Studies show that administrative encouragement of inservice training often corresponds with higher student achievement (6).

Principals are especially important in the success of the program. Their knowledge of a school's staff and its students, along with their role in the allocation of resources, gives them primary responsibility for staff development and improvement (16). Principals in successful schools give priority "to classroom carryover from inservice training" and to exchanges of ideas among staff (6, p. 29). Nelson and Herber contend that providing nurturing conditions and facilitating personnel are two management challenges faced by those who operate successful content area reading programs (18).

Reading specialists play quite a different role in a content area program. More and more, reading specialists and supervisors are being asked by content area teachers to provide information about the teaching of reading (4). The reading specialist can serve as a resource to content area teachers--providing inservice, developing materials, and giving consultation (1). Performing as a resource for fellow teachers is a different role for reading specialists. It requires them to use information and skills that traditionally are not a part of their education (20). Little is known about what the reading specialist does in this new role (1). Bean and Wilson offer a description of reading specialists that incorporates the resource role:

> The functions of the specialists might be viewed on a continuum. Remedial reading teachers at one end of the continuum have little opportunity to interact with teachers.... Conversely, reading specialists who function as resource people may never work with children. These specialists spend much of their time on both informal and

formal staff development. Between these extremes, one may find...specialists assuming resource roles as well as instructional ones (1, p. 1).

The reading specialist serving as a resource is the person who helps content area teachers apply to their curriculum materials the reading skills related to their subject. Nelson and Herber say this involves:

- appropriate use of information resources,
- demonstrations of instructional strategies,
- observations of teachers' demonstrations,
- analysis of and advice on teachers' construction of instructional materials,
- participation in curriculum revision, and
- participation in program evaluation (18).

Finally, a content area reading program cannot be successful without supportive and active classroom teachers. If teachers don't attend training sessions, if they don't apply the new information to their own course content, if they don't practice the strategies and get feedback from their colleagues, and if they don't add the strategies to the instructional repertoire they use in their own classrooms, the program won't work. A series of inservice sessions designed to give teachers the opportunity to learn about, attempt, and modify new practices can result in the successful infusion of reading instruction in content area classes (20).

What are some ways of organizing and implementing inservice programs on secondary school reading?

If there is one thing to learn from the research about how to make

changes successfully in school practices and teacher behaviors, it is that change is a process, not an event. Yet, findings consistently show that staff development within school districts is frequently "a hodgepodge of incompatible workshops and courses" (17, p. 191). These fragmented, piecemeal efforts are "generally ineffective and poorly conceived, lacking a conceptual framework" (25, p. 60). Many staff development efforts continue to be little more than one-shot, day-long workshops (2).

A systemmatic, long-term program of staff development is needed if significant improvement in teacher behaviors is to take place (3, 24, 25). Until schools begin thinking of staff development in these terms and begin operating systems of staff development, one-shot, unrelated programs will be the norm (25).

Before reviewing ways of organizing and implementing a staff development program, however, think of an inservice session you attended that you felt was particularly useful. What three things about that experience impressed you? Now think of a session you remember as being less useful--one that you perhaps felt was a complete waste of time. What three things needed improvement? Keep your impressions of these two very different training experiences in the back of your mind as you read this chapter. Mentally compare your own experiences with the characteristics of effective training supported by research.

Models for Long-Term Efforts

While the research literature describes various models that can be used as a framework for a school-wide inservice plan (5, 20, 23, 24, 25),

two will be reviewed here. Schools located near a college or university, may also want to investigate the possibility of a joint effort, where university staff can help design and implement an inservice plan based on these or other models. Such programs typically combine the resources of the university and the school to encourage teacher-directed improvement efforts (5, 22). University faculties are also a good place to look for presenters or session leaders in a specialized area.

Table 1 presents features of two staff development models. While the two models vary in the number of steps or phases, they share some common elements that are associated with effective staff development efforts. The two models:

- base inservice sessions on assessed needs;
- occur in phases, with actual training following a period of assessment and planning;
- not only evaluate the total program, but collect evaluation data throughout and use the data in program operation;
- have the flexibility to respond to immediate or changing concerns;
- involve teachers in all phases;
- include followup activities;
- view the school as the locus of change; and
- focus on changing teacher, not student, behaviors (10, 15, 20).

Staff development programs are typically thought of as training sessions. Table 1 demonstrates that the actual training sessions

Table 1

Two Staff Development Program Models

	Model A	Model B
Steps Leading to Training	READINESS Mobilize support Develop generalized, written 4-5 year plan, including goals	DESIGN AND PLANNING Assess needs, attitudes, interests, and resources Determine program goals and objectives
	PLANNING Establish inservice objectives congruent with goals Identify available resources Plan inservice activities	
Actual Training	TRAINING Conduct inservice plan Collect formative and summative evaluation data	IMPLEMENTATION Conduct the program
Steps Following Training	IMPLEMENTATION To ensure transfer of training, provide followup assistance Give administrative support and recognition Collect evaluation data on extent of transfer	EVALUATION Evaluate sessions themselves Evaluate effect of process on classroom practice Evaluate effect of program on student attitudes and performance
	MAINTENANCE Monitor continuously Generate new data and needs to use in repeat of cycle	

Model A - Reference 25
Model B - Reference 26

constitute only one phase of a carefully planned and evaluated program of inservice.

During steps leading to the training, school faculties develop motivation and commitment to the program; assess needs and attitudes of teachers, supervisors, and administrators; and establish goals of the inservice program. Discussions of how to develop and use checklists and questionnaires in needs assessment are beyond the scope of this chapter. However, examples specific to content area reading are available (20, 24). This planning stage is important to the program's success. It's during this time that schools can develop a climate receptive to growth and change. In fact, this climate is crucial to any successful school improvement effort. Joyce and his colleagues contend--and others' research confirms--that "unless a local school environment is congenial to sensible innovation, even minor school improvement objectives, whether locally or externally generated, will have hard sledding" (14, p. 65). An organized and formal planning phase is frequently forgotten in the design of staff development programs (25).

The steps following inservice sessions are also important. Both models recommend looking at what happens in the classroom to see if teacher practices have changed. Evaluation of the sessions themselves is also recommended.

Any staff development program that follows one of these models will be a long-term effort. The point of describing program models, instead of limiting ourselves to actual training sessions, is to stress the necessity of the school's long-term commitment to change (24). There is, in fact, support for the belief that inservice program designs <u>should</u> be

complex and ambitious. Such projects are less likely to be trivial and routine, are less likely to suffer from we've-tried-that-before complaints, and are more likely to have an effect on practice (10).

Characteristics of Effective Training

The heart of the inservice plan lies in the actual training sessions. What help can the research provide to make inservice sessions more effective?

Critical to the success of the training sessions is a careful match between what you want to achieve and how you go about it. Inservice sessions are typically designed to do one of three things: give information, develop skills, or change behaviors (15). A problem exists when there is a mismatch between the goals of inservice and the type of session presented. In other words, if the goal is to get content area teachers to begin attending to their students' reading needs--to change teachers' current behavior--then a program that relies solely on information transmission is inappropriate. Increasing teachers' knowledge of a practice will not, by itself, cause them to change their behaviors. So care must be taken to ensure that the goals of the particular inservice session are clear and specific, and that the type of session is appropriate for achieving those goals.

Characteristics of the three types of inservice can be examined closely. Korinek, Schmid, and McAdams reviewed the literature to determine the most frequently used types of inservice. From more than 100 reports, they selected 17 as adequate for meeting the purpose of their survey. Table 2 compares the features of the three inservice types they identified (15, p. 34).

Table 2

Features of Three Inservice Education Types

Feature	Inservice type		
	I: Information Transmission	II: Skill Acquisition	III: Behavior Change
Time Frame	1-3 hours per session	Multiple sessions of 2-3 hours	Multiple sessions of varying lengths
Location	Available meeting site or conference site	Usually school-based; occasionally conference sites	School-based--home school or district
Content	Generally unrelated, self-contained, independent topics	Most presentations are part of sequence; some independent topics	Interdependent presentations linked by common purpose
Audience Size	No upper limit	Determined by ratio of session leaders to participants	No upper limit
Presentation Style	Lecture, demonstration, or panel with passive audience participation	Demonstration, practice, feedback, active participation	All styles, both active and passive participation
Evaluation	Rating of usefulness or enjoyability	Demonstration of the skill	Measurement of change in teaching behavior and degree to which project objectives met

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Type I inservice--information transmission--is designed to do little more than increase knowledge about a particular subject. However, it does have its uses. Many times, as teachers are learning a new approach or instructional technique, a presentation of theory can help them understand its underlying rationale or conceptual base (11, 14). Lectures and discussions are among the most common forms of this type of inservice. The problem associated with information transmission type inservice is that it is frequently used to the exclusion of other types more appropriate to the goals of the training. Inservice sessions of

this type appear to be both the most common and the most unpopular with teachers (15).

Skill acquisition, Type II, is appropriate for strengthening old skills or learning new ones. The ability to demonstrate the skill does not, however, ensure that a teacher's classroom behavior will change.

Type III inservice--behavior change--includes sessions from both Type I and Type II. Its difference from Type II lies chiefly in its explicit commitment to changing behavior. "Each part of the program is built on careful assessment, clear objectives, observation, and record keeping" (15, p. 36). It is the most costly, time consuming, commitment-laden, and least used of the three types. It is also the only one that provides "a reasonable chance of changing teacher practice" (15, p. 36).

Joyce and Showers would say that on-site coaching is also necessary before a change in teaching behaviors will occur. They have identified four components of training that "virtually guarantee the successful implementation of almost any approach" (12, p. 5; see also reference 17). The components include:

- theory,
- demonstration by others,
- practice and feedback, and
- coaching.

Coaching is the key to the effective transfer of training from the workshop to the classroom. Combinations of the first three training components--provided they are of high quality--are sufficient to enable most teachers to develop a new skill. Unfortunately, development of a skill does not ensure its use in the classroom. In their studies of how

and if people transfer training from the workshop to the workplace, Joyce and Showers conclude that, with coaching, most if not all teachers will begin to use newly acquired skills in their classrooms (12).

What is coaching? Coaching is defined as teams of teachers working together to study new skills and polish old ones who (a) provide companionship, (b) give technical feedback, (c) help to determine appropriate use of the new skill, (d) help to gauge student response to the new technique, and (e) provide emotional support as teachers try new skills in front of students (12, 13). In early reports, Joyce and Showers were unable to provide data to support their notion that teams of peers would be the most practical choice as coaches (11, 12, 13). More recent research, however, supports that view (19, 22).

Table 3 shows the percentage of teachers who will use new skills in the classroom after exposure to the different training components identified by Joyce and Showers. A presentation of theory, or an information transmission inservice experience, results in classroom application for relatively few teachers--"perhaps as few as 10%" (14, p. 143). The percentage increases as other components are added, but look at the dramatic difference coaching makes. With coaching, 75% or more of the teachers will take the new skill back to the classroom (14). However, none of the training components alone is powerful enough to bring about classroom behavior changes for most teachers. Coaching without an understanding of the underlying theory, opportunities to observe others in demonstrations, and occasions to practice with feedback will accomplish little (12, 14). It is when the components are combined that teachers acquire and use new skills (11, 12).

Table 3

Training Components and Levels of Impact

	LEVELS OF IMPACT			
TRAINING COMPONENTS	KNOWLEDGE MASTERY	SKILL ACQUISITION	CLASSROOM APPLICATION	PERCENT OF IMPLEMENTATION IN THE CLASSROOM (14)
THEORY	Middle to high	low	very low	$\leq$ 10%
Theory plus DEMONSTRATION	high	low to middle	very low	10%
Theory, demonstration, plue PRACTICE and FEEDBACK	high	high	very low	$\leq$ 20%
Theory, demonstration, practice, feedback, plus COACHING for application	high	high	high	$\geq$ 75%

One final point: Learning to use a new skill frequently creates discomfort (12, 13). There's a reason for that. Trying out a new teaching behavior during a training session is different from using it in the classroom. For one thing, students aren't there; the training environment is controlled. Practicing a new skill in simulated conditions before small groups of students is recommended as part of a successful training program. Joyce and Showers talk about a second stage of learning that is necessary after a new skill has been acquired during training (12, 13). They call this the transfer of training. It comes about when teachers try to use the new skill in the classroom. That's risky, and teachers frequently feel awkward. Classroom conditions

require that the teacher know how to adapt the new skill to students, apply it to subject matter, modify or create instructional materials, organize students to use it, and blend it with other instructional approaches (13). Behaviors that the teacher already practices with some degree of fluency may actually get in the way of using the new skill (12, 13). So until teachers feel as comfortable using the new skill as they did using their old ones, they'll experience some degree of discomfort. The more disruptive the new skill is to existing teaching behaviors, the greater the discomfort. Teachers can be helped through this period of distress by giving them advance notice of the transfer problem; by helping them achieve high levels of skill proficiency during training; and by designing the training program to help them develop an understanding of "how the model works, how it can be fitted into the instructional repertoire, and how it can be adapted to students" (12, p. 6). Joyce and Showers frequently quote a college football coach they interviewed to illuminate the parallels between the transfer of skills in teaching and in athletics. The coach tells his incoming freshman players:

> There are going to be so many things in your head that your muscles just aren't going to respond like they should for awhile.... You've got to understand that the best way to get through this is to relax, not worry about your mistakes, and come to each practice and each meeting anxious to learn. We'll generally make you worse before we make you better (12, p. 7).

His words are also good advice for teachers who are learning new skills. Coaching can help teachers throughout the transition.

Effective Practices by Inservice Leaders

The effectiveness of inservice leaders can affect how teachers feel about their staff development experiences (24). Vacca asked more than 150 classroom teachers to do what we asked you to do at the beginning of this chapter: to recall some of their inservice experiences. Her request was to list effective and ineffective behaviors of inservice leaders. She categorized the behaviors into four areas: content delivery, personal influence, professional competence, and structural arrangements. She then suggested appropriate strategies that inservice leaders might use as they practice the effective behaviors. Table 4 shows the four areas, the behaviors of effective inservice leaders, and the various implementation strategies suggested by Vacca. Do your experiences hold true with what Vacca found to be effective? Her results can be helpful, to content area teachers who find themselves taking a leadership role in developing a content area reading program at their school.

Summary

Many times, secondary school teachers are bewildered by the need to help their students understand printed text. Their lack of formal training in reading instruction necessitates that they learn these skills after they become teachers. Involvement in a staff development program is one way they can acquire skills to help all their students learn from text. Research shows that systematic long-term staff development programs are too infrequently found in schools. Effective staff development efforts occur in stages, with actual training sessions as

Table 4

Characteristics of and Strategies for Effective Inservice Leaders

Content Delivery	Personal Influence	Professional Competence	Structural Arrangement
• involves participants actively in the topic: -use brainstorming -encourage open-ended discussion -facilitate group interaction	• displays a positive attitude and a pleasant disposition: -interact with teachers prior to presentations (know people's names) -keep teachers on task during small-group work. -listen for and respond to reactions throughout and after a session -maintain a sense of humor	• is well informed and well organized: -know why and how to teach reading in content areas -share the outline or agenda for the session, either orally or in writing -provide a bibliography of sources for further study	• arranges to assess the needs of the group in advance: -conduct pre-meeting survey -conduct assessment on the spot through large- or small-group brainstorming, anticipating certain needs in advance
• relates the topic directly (through examples) to the classroom: -use role-playing and simulation activities -prepare visuals and hand-outs -conduct demonstration teaching in classrooms -videotape actual lessons	• is sensitive to the environment or dynamics within the group: -plan gripe sessions, but don't allow them to dominate the program -digress from prepared presentation to respond to a teachable moment -respond to body language	• has a purpose in mind and adheres to the task at hand: -keep the session on schedule -continue informally for those who want to do so	• provides options in organization matters, especially if things go wrong: -know where to get more chairs or how to move to a larger room -suggest feasible alternatives for truly disgruntled participants--allow them to leave with dignity
• provides materials or ideas for materials: -help teachers adapt a technique to fit their students' needs -conduct a series of materials-producing workshops	• answers questions directly and patiently: -respect the audience, if you want the same in return	• conveys explanations clearly: -explain directions fully -avoid assuming too much	

only one part of a carefully planned and evaluated program of inservice. When training is followed by teams of teachers working together as coaches to study new skills and polish old ones, teachers are more likely to use the new skills in the classroom. Characteristics of inservice leaders themselves also affect the success of staff development efforts. Research has identified effective behaviors that can be used by content area teachers who find themselves taking a leadership role in a staff development program.

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